

TOOL TEST

Replacement Miter Gauges

We checked for accuracy
and ease of adjustment

BY TIM ALBERS



Look in just about any woodworking catalog these days, and you're sure to see two or three replacement miter gauges. But why should you consider spending upwards of \$150 when your table saw came with a miter gauge? The reason is that most replacement miter gauges are precision woodworking jigs—usually a vast improvement over the crude miter gauges supplied as standard equipment. While features and quality vary on replacement miter gauges, they all provide improved accuracy when crosscutting. All have positive stops at 90° and other common angles and some means for adjusting the fit of the sliding bar to the miter slot. Almost all offer a long fence, and most fences have a stop system.

Miter gauges won't solve all of your crosscutting needs. For wide boards, you'll still need a crosscut sled. Boards that are roughly 12 in. or wider will force the miter gauge off the front of the table, and long, heavy boards will drag on the saw table, pivoting and pulling away from the fence.

However, metal miter gauges have some advantages over wooden crosscut sleds: They won't warp or go out of square, they cut a number of common angles accurately, they generally are lighter and easier to place on and off the saw table, and they accommodate a tilted blade or dado head.

The testing procedure

While miter gauges can be used on bandsaws, disc sanders, shapers, and router tables, for this review I limited my testing to the table saw, the machine most people think of when discussing miter gauges.

To test for accuracy, I verified that my saw was set up properly. I took test cuts in lumber that had freshly ripped and jointed edges, so both edges were perfectly parallel, straight, and square. Then I cut off a section from the end of the stock, flipped over the piece, and placed the two pieces together on the saw table. An accurate cut showed no light along the cut line.

I performed the same procedure at 45° and 60° on all miter gauges (except those with no fixed settings at 60°). And finally, I used all of the miter gauges in my shop over a period of several months.

The miter gauges come in three basic designs: variations on the traditional protractor head, the Inkra products with their rack-and-key adjustment, and the Osborne product with its triangular support system.

What I reach for

I used all 10 of these miter gauges in my shop, but two of them stood out and received more use than the others: the Woodhaven Deluxe (with its optional fence) and the JDS Accu-Miter. The Woodhaven Deluxe saw the most all-around use. But the heavy Accu-Miter, with its smooth micro-adjustable stop, was my tool of choice for joinery cuts.

For the more budget-conscious, the Woodhaven standard miter gauge requires a shopmade subfence and makes only 90° and 45° cuts, but I found the cuts to be precise. It also would make a great second miter gauge for making box joints or for use on the router table, bandsaw, or disc sander.

Tim Albers is a woodworker and machine refurbisher in Ventura, Calif.

FEATURES AT A GLANCE



ADJUSTABLE GUIDE BARS

To increase accuracy, all of the gauges offer some means for adjusting the fit of the guide bar in the miter slot. The Delta Deluxe Miter Gauge has steel setscrews (left), which threaten to wear a track in the cast-iron slot. Others have plastic or graphite screws. The Inkra miter gauge has nylon washers that spread to fit the miter slot (right).



EASY, ACCURATE MITER CUTS

Replacement miter gauges offer positive stops at a number of common angles, from as few as three angles to as many as 364.



ACCURATE CUTS TO LENGTH

Most gauges also offer stop systems on their fences. Many flip up and out of the way when not needed.

SIX PROTRACTOR-STYLE GAUGES

These six protractor-style gauges all have a solid head that pivots on the guide bar, with positive stops at common angles. This is by far the most common miter-gauge design.

DELTA DELUXE



Overall rating: Very good

Source: Tool Crib/Amazon
800-635-5140
www.amazon.com

Price: \$65

Positive angle stops (nine): 90°, 75°, 60°, 45°, 30° each way

The Delta Deluxe is an accessory miter gauge that offers good value for the money. It's a traditional design with the head mounted on a steel bar by means of a 4-in.-tall clamping handle. The cast and machined protractor head on the model I looked at was straight and square to the table.

The Delta Deluxe uses a spring-loaded pin for positive



stops, which work well and are adjustable. There is an optional cam-action clamp attachment, but no auxiliary fence or stop available.

The Delta Deluxe is difficult to set up. It took some trial and error to adjust the four plates that contain the positive stops, as they tended to shift when they were being locked down.

WOODHAVEN DELUXE

The Woodhaven Deluxe is sold through mail-order companies as simply a "deluxe miter gauge." I tested it with its optional fence and stop, sold as a package by Woodhaven. Accurate out of the box, the Woodhaven has a 24-in.-long sliding aluminum fence extrusion attached to the head via T-slots, allowing it to slide close to the blade. The L-shaped flip stop has a micro-adjuster, which was solid with no play. The

Overall rating: Excellent

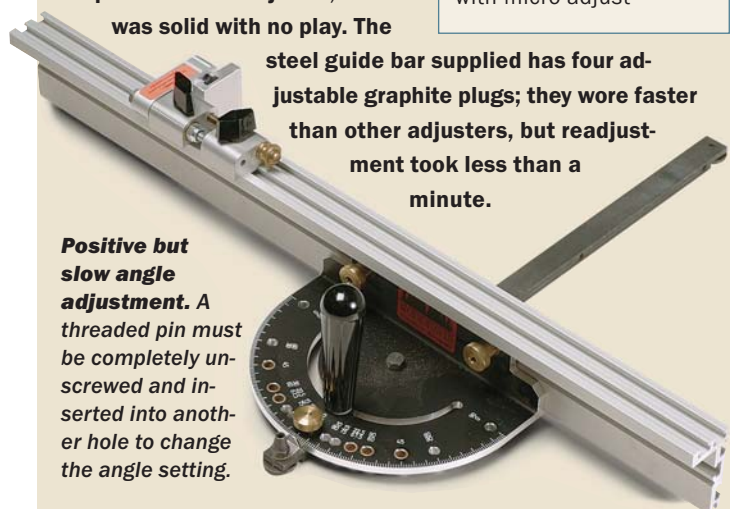
Source: Woodhaven
800-344-6657
www.woodhaven.com

Price: \$176 (includes auxiliary fence)

Positive angle stops (15): 90°, 80°, 75°, 67½°, 60°, 45°, 30°, 0° each way

Fence length: 24 in.

Fence stop: One flip stop with micro-adjust



steel guide bar supplied has four adjustable graphite plugs; they wore faster than other adjusters, but readjustment took less than a minute.

Positive but slow angle adjustment. A threaded pin must be completely unscrewed and inserted into another hole to change the angle setting.

ROCKLER SURE-LOC

Rockler's miter gauge looks like a basic design but actually uses a unique, secure locking system. The bottom of the head has small teeth that engage matching teeth on top of the bar. The head locks in place at a perfect 90°. However, the Sure-Loc does not allow any angle between the teeth increments.

The rest of the tool was disappointing. The guide bar—one

of only two aluminum guide bars in the test—flexed easily when even light pressure was applied to the fence. The guide bar is actually made from two separate pieces that can be adjusted outward to fill the entire miter slot, resulting in a very weak bar. The 22-in.-long fence on the model I tested was slightly concave along its face and out of square to the table surface. For most crosscuts the fence doesn't have to be 90° to the table, but there are critical instances when a piece is placed upright against the fence, such as when cutting joinery. Last, the fence-adjustment knobs have only ¼ in. of clearance below and were awkward to turn.

Overall rating: Fair

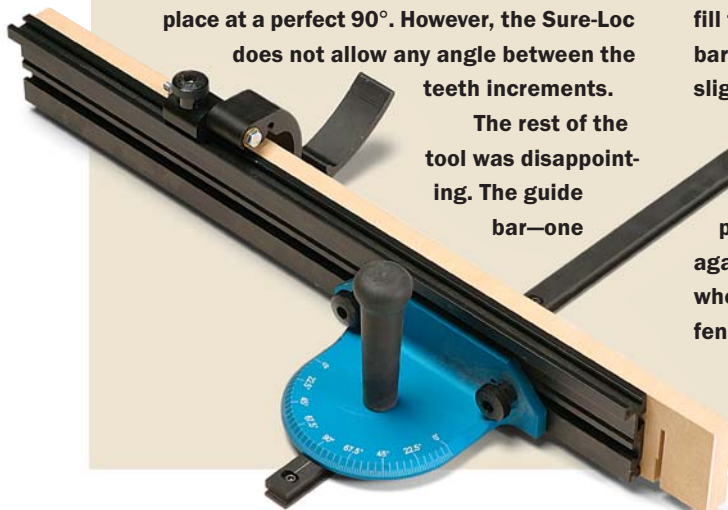
Source: Rockler
800-279-4441
www.rockler.com

Price: \$130 (includes auxiliary fence)

Positive angle stops (240): at every 1½°

Fence length: 22 in.

Fence stop: One flip stop



The Rockler Sure-Loc has teeth. These ensure accuracy but limit the miter gauge's settings to 1½° increments.



JDS ACCU-MITER

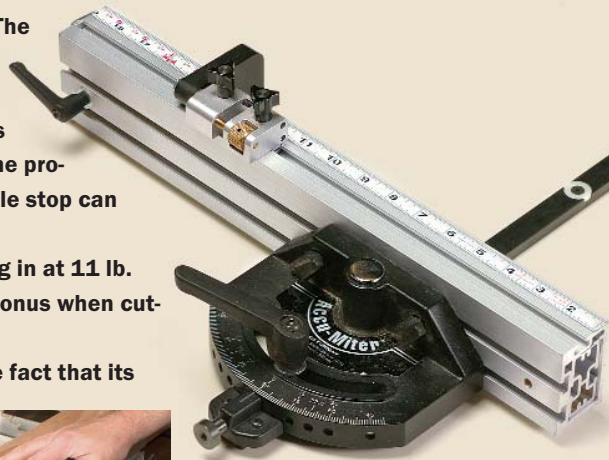
The JDS miter gauge is a big, heavy workhorse. The cast-aluminum head was solid as well as flat and straight. The steel guide bar has split nylon washers for adjustment. The Accu-Miter requires assembly and setup before it can be used, but the procedure was straightforward. The fence and simple stop can extend to 34 in., and the flip stop was accurate.

This was the heaviest tool to handle, weighing in at 11 lb. However, I found its extra weight and rigidity a bonus when cutting joinery and angles.

The only shortcoming of the Accu-Miter is the fact that its

Two-stop system.

A micro-adjustable flip stop fits on only the main 18-in. fence, but the fence extension offers a simpler stop for greater capacity.



Overall rating: Excellent

Source: Tool Crib/Amazon
800-635-5140
www.amazon.com

Price: \$180 (includes auxiliary fence)

Positive angle stops (nine): 90°, 75°, 67½°, 60°, 45° each way

Fence length: 18 in.

Fence stops: One flip stop with micro-adjust; one fixed stop on end of telescoping fence section

angle markings are cast into the head. This makes them large and easy to read but imprecise compared with some others. Also, it comes with a workpiece clamp, but I found it to be awkward, so I removed it.

ANGLEWRIGHT A30



Overall rating: Very good

Source: AngleWright
510-608-2470

Price: \$84

Positive angle stops (three): 90°, 45° each way

Miter gauges don't get much simpler than the AngleWright: a machined steel bar and simple aluminum head with only three attachment angles—one at 90° and two at 45°. There are no settings in between. To change angles, you simply unscrew the brass knob, remove the head, and reposition it on the

guide bar. There are no fine-tuning features on the head of this miter gauge, but it doesn't need any: It was straight and square out of the box.

The AngleWright is supplied with a guide bar machined for the user's specific saw. The one specified for my table saw fit the miter slots almost perfectly. The guide bar has three small nylon adjustment setscrews for fine-tuning the fit.

Shopmade fence. The AngleWright and Woodhaven (at right) have holes for attaching a sacrificial fence.

The AngleWright has no additional features or available options. Basically, this streamlined but solid miter gauge cut the three commonly used angles accurately.



WOODHAVEN STANDARD



Overall rating: Excellent

Source: Woodhaven
800-344-6657
www.woodhaven.com

Price: \$60

Positive angle stops (three): 90°, 45° each way

Woodhaven's standard gauge is similar to the AngleWright with a nearly identical head assembly. Its head is slightly larger than that on the AngleWright, and it was machined flat and square. The Woodhaven gauge uses four graphite plugs to adjust the bar for a tight fit in the miter slot, like the Woodhaven Deluxe. Both the AngleWright and Woodhaven standard models made perfect cuts right out of the box, but with its lower price tag, the Woodhaven has a slight edge.

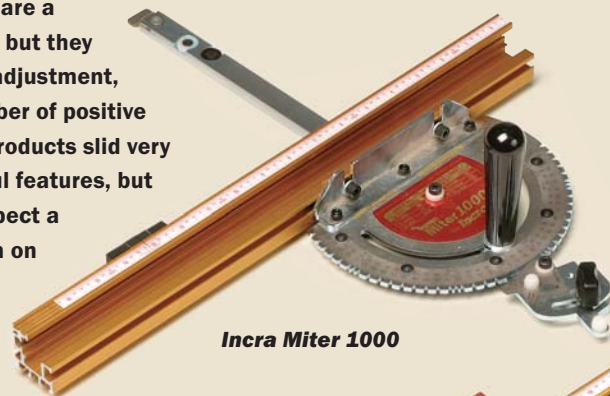


Only three angles. The Woodhaven and the AngleWright (at left) require removing the head and unscrewing a nut or bolt to change the angle. But they are very accurate.

INCRA USES RACK-AND-KEY ADJUSTMENT

The Incra miter gauges are a protractor-head design, but they use a toothed rack for adjustment, creating a greater number of positive stops. All of the Incra products slid very smoothly and had useful features, but for the price I would expect a higher level of precision on the Miter 2000 and 3000, along with improved stops. The Miter 1000 is a better value, with its easily adjustable guide bar and good fence.

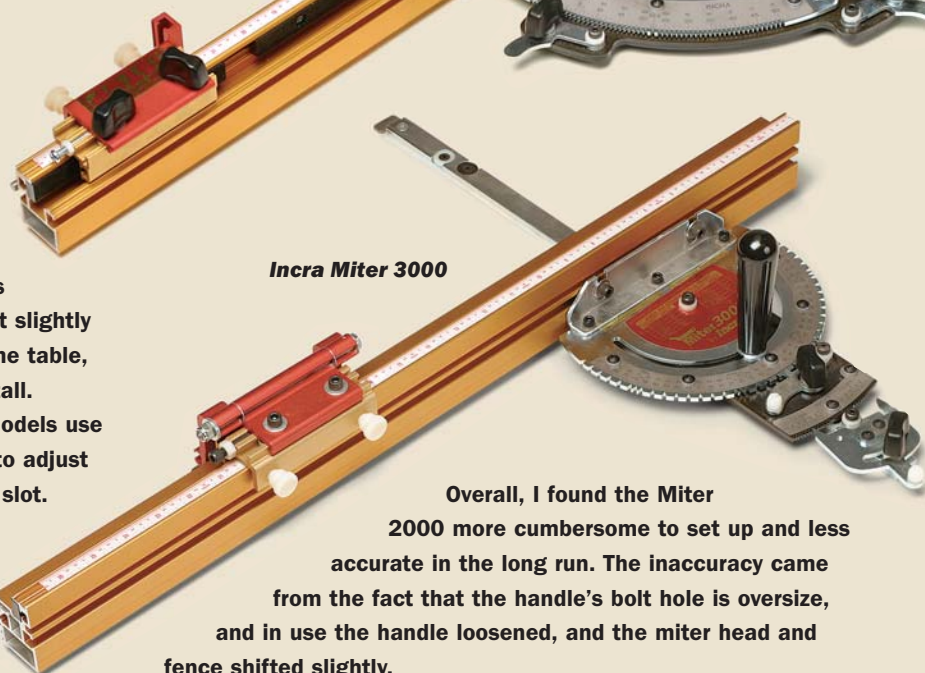
The Miter 1000 is Incra's basic miter gauge and one of the least expensive on the market. The markings on the protractor head were clear, and the head was quick and precise to adjust. Once the fence's mounting bracket was set at 90°, the remaining adjustments were accurate. The fence was



Incra Miter 1000



Incra Miter 2000



Incra Miter 3000



Out of square. The Incra fences weren't square to the table. The problem was fixed by shimming the fence-mounting bracket.

perfectly straight but slightly out of square with the table, even at only 1½ in. tall.

All of the Incra models use nylon split washers to adjust for play in the miter slot. Easy to adjust, the washers allowed for smooth movement.

Aside from the initial adjustment of the fence-mounting bracket, the only shortcomings of the Miter 1000 were its small stop—which protruded only ¼ in. from the fence, leaving it

unsuited for stacked cutting or pieces with angled ends—and the mini T-slot system for attaching an auxiliary fence. The size of the T-slots and their low position on the fence resulted in a wobbly auxiliary fence if it was more than a few inches high. However, at \$90, the Miter 1000 is an excellent value, with 41 positive miter settings and accurate sliding action.

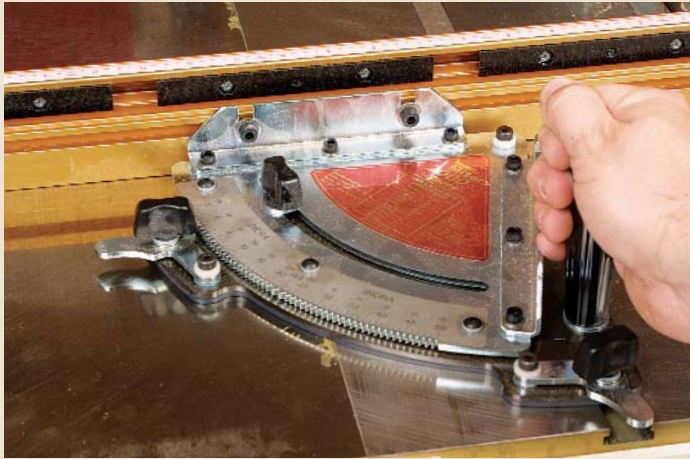
The Miter 2000 uses a different approach to the protractor head than the other two Incra products: a 90° head with fence-attachment brackets on two sides, for using the miter gauge on the left or right of the sawblade. The head is held to the bar by the handle bolt in the rear and a pivot point in front.

Overall, I found the Miter 2000 more cumbersome to set up and less accurate in the long run. The inaccuracy came from the fact that the handle's bolt hole is oversized, and in use the handle loosened, and the miter head and fence shifted slightly.

Another problem on the Miter 2000 was the fence itself: It not only was significantly out of square, but it also was warped. As with the Miter 1000, the manual suggests inserting shims, but it's difficult to correct both out of squareness and warp. The "Shop Stop" on the Miter 2000 offers a micro-adjustment feature that was not as precise as on the other designs, and it does not flip out of the way.

INCRA MITER	1000	2000	3000
Overall rating	Good	Fair	Fair
Price	\$90	\$150	\$210
Positive angle stops	41 stops: every 5°, plus 22½° and 67½° each way	220 stops: every ½° on one side	364 stops: every ½° each way
Fence length	18 in.	27 in.	27 in.
Fence stop	One	One with micro-adjust	Dual flip stops with micro-adjust

Source: Woodpeckers (800-752-0725; www.woodpeck.com)



The Incra 2000 can go out of square. If the large black handle loosens with time and use, the fence-support plate will shift slightly left or right.

The Miter 3000 reverts to the head mechanism found on the Miter 1000 (which I prefer) with the addition of a 1° and ½° increment assembly. The finer degree adjustment was a nice feature, but with it the gauge took longer to adjust. However, if I were doing a lot of cutting that required precise half-degree adjustments, it would be a handy option.

The fence on the Miter 3000 was almost perfectly flat, but like the other Incra products, the fence was out of square to the table. Again, this can be corrected with shims.

After the testing period for this article, Incra debuted special editions of the 1000 and 3000 miter gauges, the 1000SE and the 3000SE, which offer longer, telescoping fences. Also, the 1000SE includes the two-armed flip stop found on the 3000 model.



Setting angles is less straightforward on the 3000. The big rack has stops every 5°, and the smaller rack is used to add single and half degrees to those settings.

OSBORNE MITER GAUGE

The Osborne gauge has a unique design with a support arm that forms a triangle with the fence and guide bar. The arm adjusted quickly with accurate detents at common angles. However, the gauge allowed too much flex and yielded inaccurate cuts in certain situations.

One end of the fence connects to the center of the guide bar. The opposite end of the fence mounts to the support arm, which, in turn, is attached to the front of the guide bar. The parts pivot at each of these three attachment points.

Markings on the adjustable arm measure the angle, and



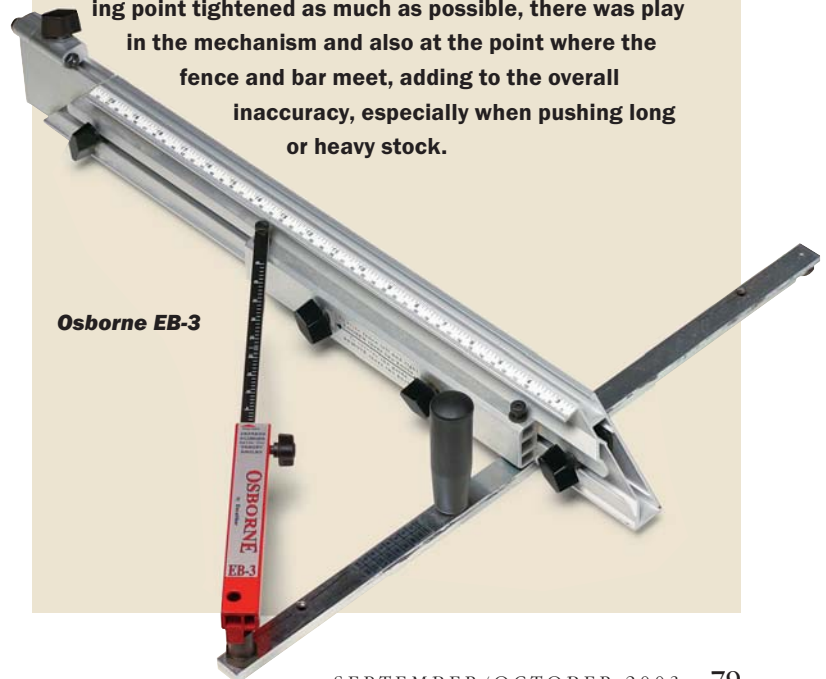
The longest crosscut capacity. The telescoping arms and extension block allow the stop on the EB-3 to work on boards as long as 42 in.

a ball plunger holds the fence in place. The plunger allowed for a quick return to 90° or any of the preset angles in each direction.

The EB-3's guide bar has three adjustment points to help provide a snug fit in the miter-gauge slot. The problem with the overall design

is that wide stock pushes one of these points out of the miter slot, allowing the guide bar and entire miter gauge to flex.

The EB-3 incorporates an eccentric mounting point at the rear of the bar for the adjustment arm, allowing the user to fine-tune the angle settings. However, even with this mounting point tightened as much as possible, there was play in the mechanism and also at the point where the fence and bar meet, adding to the overall inaccuracy, especially when pushing long or heavy stock.



Osborne EB-3

Overall rating: Fair

Source: Tool Crib/Amazon
800-635-5140
www.amazon.com

Price: \$160 (includes extension fence)

Positive angle stops (nine): 90°, 75°, 67½°, 60°, 45° each way

Fence length: 24 in.

Fence stop: One flip stop