TOOL TEST

Miter Gauges

We compare eight models to see which are the most accurate and easy to use

BY CHRIS GOCHNOUR

A great tablesaw setup should include a great miter gauge as part of the package. This important accessory ensures safe, accurate crosscuts on boards and small panels and is great for joinery cuts, too. Unfortunately, the gauges provided with most new tablesaws often are less than ideal, with play in the miter-slot fit that can't be tuned, a head that's hard to read and set, and a fence that's too small (or nonexistent) to support your work.

Fortunately, several manufacturers have designed high-quality, aftermarket gauges that address these issues. I looked at eight fully equipped gauges (with fence) and put them through the gauntlet to try and find the ultimate companion to a good tablesaw. Before getting to the test, though, let's look at the key parts of a miter gauge.

What makes a good miter gauge

A miter gauge has three main parts that must work well together to ensure accuracy: a bar, a head, and a fence. The bar must slide in the slot without play, the head should offer a means of setting the gauge easily and accurately to a desired angle, and the fence should support the material firmly and provide a mounting place for stops or a rule.

Miter bar keeps the gauge on track—If the miter bar that guides the gauge doesn't fit in the tablesaw's miter slot, any pressure placed on the gauge while cutting will throw it out of line with the sawblade. This gives you inaccurate angles and joints that fit poorly. To remedy this, most gauges feature a way to adjust the fit of the bar so that it slides smoothly in the track. A gauge that can't be adjusted will make imprecise cuts.

Photos: Dillon Ryan

A CUT ABOVE THE REST

JDS ACCU-MITER

Street price: $230

AUTHOR'S BEST OVERALL CHOICE

The traditional, protractor-style head on this robust gauge registers angle detents solidly with a spring-loaded pin. The sturdy telescoping fence holds stock well, and it comes with a micro-adjustable flip-stop and a flip-down stop on the end of the telescoping section. The rigidity of the fence and the weight of the head ensured extra-smooth action.

KREG MITER GAUGE

Street price: $140

AUTHOR'S BEST VALUE CHOICE

This all-aluminum gauge has all the features of a great unit with a price that's hard to beat. The nylon adjustment screws keep the gauge tracking well in the miter slot. The fence has a flip-stop that's curved to let work slide under it for quick repeat cuts. The head quickly registers common angles via a brass pin. The vernier scale is a nice feature.

Head ensures accurate angles—The head is the heart of the gauge, the key to accurate square or angled cuts. The scale must be precise and easy to read. Positive stops, or detents, at common angles are a plus. Adjustments should be quick and easy to make, while solid enough to avoid being bumped from a setting in use. Because the head is where you hold the gauge as you push stock through the blade, it should also have a handle that is comfortable and easy to grasp.

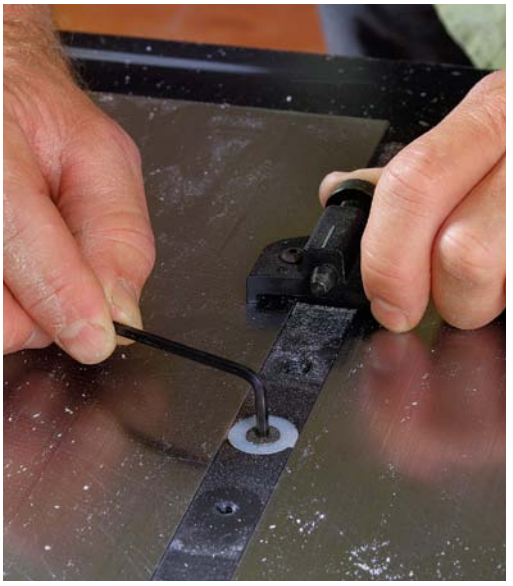
Sturdy fence that's versatile—Fences are a necessary component of a quality aftermarket gauge, both for safety and for increased accuracy and repeatability. Fences support the stock during the cut, so they should be solid and not slippery, to ensure the stock doesn't drift. Some gauges have telescoping fences that support a longer piece beyond the table's edge. The fence also should be easy to adjust, since its position is ever-changing in relation to the blade as different angles are set.

All the gauges tested have extruded aluminum fences, a big plus because they allow you to mount an adjustable flip-stop. The flip-stop is useful for repeat cutting and minimizing drift, and it can be flipped out of the way when not needed. The stop should be solid and fit the fence face tightly so it works even on pointed, angled board ends. A micro-adjustable stop is a plus because it enables you to fine-tune the setup. Another desirable feature is a rule mounted to the fence to locate the stop precisely.

Putting the gauges to the test

To get familiar with each gauge and test its accuracy and ease of use, I designed four simple tests: the straight-cut test, the miter

MITER BAR No play allowed



Split washers need a wrench. *The three Incra gauges and the JDS Accu-Miter use split washers to adjust the bar's fit in the miter slot. With the bar in the slot, adjustments are made with an Allen wrench. This creates a no-wiggle fit, but you must remove the head to reach some of the washers.*

Nylon screws are easiest. *Adjustments on the Kreg and Woodhaven gauges are made with a flat-head screwdriver. It's easy, but you have to make the adjustments with the bar out of the miter slot because the screws are accessible only from the side of the bar.*

test, the octagon test, and the long stock test. The straight-cut test ensured the 0° setting on the head was perpendicular to the blade. I used each gauge to cut a piece of poplar roughly in half, then I placed the halves edge-down on the tablesaw and flipped one over. Flipping the piece doubles any error in the cut and exaggerates how off the gauge is.

For the second test, I used each gauge to make an 11-in. by 14-in. picture frame. This tested the gauge's accuracy at one of the most common angles used, a 45° miter, and also gave me the chance to use the flip-stops to make repeat cuts.

I also made an octagon with 7-in. sides using the 22.5° setting on the gauges and the flip-stops once again. This tested the head's accuracy and the gauge's ease of use with smaller stock. The octagon shape also exaggerated any inaccuracies in the angles, making even a small error more obvious with larger gaps at the joints.

For the long stock test, I crosscut a piece of poplar, 1¼ in. thick by 6 in. wide by 60 in. long. I checked whether the fence

HEAD Easy, accurate adjustments

Detents for every angle. *The Incra 1000 HD has positive detents every 1° of its range and at 22.5°. This is a perfect medium between the 1000 SE's too-broad 5° increments and the 3000 SE's tedious ½° increments.*

How to handle in-between angles. *The Kreg uses a brass pin to lock in common angles. When operating outside these angles, the vernier scale allows accurate adjustments down to 1/10°.*

Digital adjustment doesn't hold. *The Ridgid was the only digital head tested, sacrificing detents for adjustability to 1/10°. While getting an angle is easy, tightening the handle causes the gauge to lose its setting.*

FENCE Stops are a must

Flip-stops are standard. *Each gauge comes with a flip-stop, but not all are created equal. The Kreg's curved stop lets material slide under it, so you don't have to lift the stop by hand. But its small contact area with the fence allows angled work to slide behind the fence.*

Incra fits right in. *The flip-stop on each Incra has ribs along the back that fit into the extrusion of the fence. This interlocking mechanism keeps mitered pieces from slipping between the fence and stop.*

Micro-adjustments for small changes. *The gauges from JDS, Woodhaven, and Ridgid have flip-stops that use a knurled knob to make micro-adjustments.*

deflected, if the board slipped on the fence face, and whether the fence helped "hold" the stock during the cut.

One gauge truly shined through all the tests and is my Best Overall choice: the JDS Accu-Miter. It has a bar with low-friction nylon adjusters for a tight, silky fit, a head that was quick to set up and offered secure, accurate angle selection, and a telescoping fence with micro-adjustable flip-stops.

The Kreg miter gauge is the Best Value, because it offers a handful of features at an affordable price: a bar with nylon adjustment screws, an easy-to-use head with a vernier scale and solid detents, and a long fixed-length fence with a unique flip-stop.

Chris Gochnour is a professional furniture maker in Salt Lake City, Utah.

STRETCH THE FENCE FOR LONG STOCK

Long-distance support. *A telescoping fence, like that on the Incra, helps hold long stock square to the blade.*

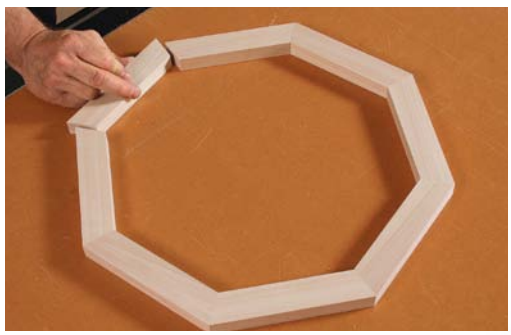
Hold-down for long crosscuts. *A long board hanging off the table can be hard to control safely as you cut it. JDS offers a clamp-down accessory $59) with its Accu-Miter gauge that keeps the stock firmly on the table.*

MITER GAUGES PUT TO THE TEST

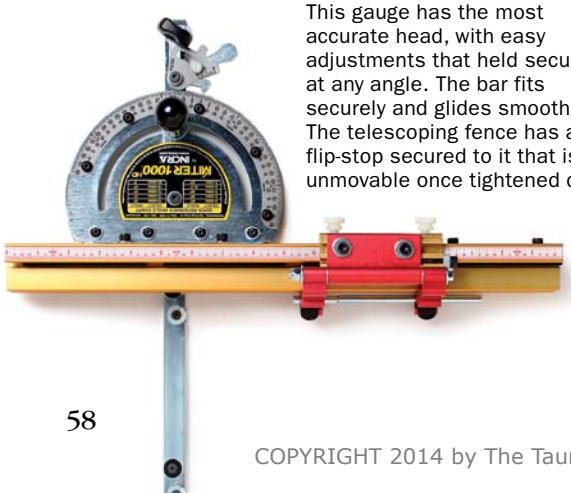
Straight cuts. *To test the gauges' 0° setting, Gochnour made simple crosscuts. The good news is that every gauge tested made a perfectly straight cut at 0°.*

Miter test. *To test the accuracy of miter cuts, flip-stops, and head settings, Gochnour made picture frames. An accurate gauge will cut equal-length pieces.*

The octagon test. *Gochnour made octagonal frames using the 22.5° detent and the stops. This tested the accuracy of the detent system and the stops as well as each gauge's ability to handle smaller stock. If everything works as it should, the result will be geometrically perfect with gap-free joints.*

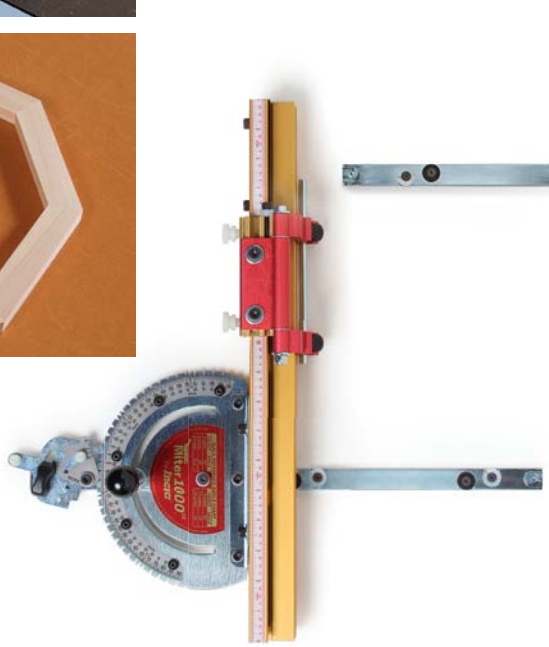


MODEL	STREET PRICE	BAR ADJUSTMENT
Incra 1000 HD	$190	Good
Incra 1000 SE	$160	Good
Incra 3000 SE	$290	Good
BEST OVERALL JDS Accu-Miter	$230	Very good
BEST VALUE Kreg	$140	Excellent
Osborne EB-3	$120	Very good
Ridgid Digital Miter Gauge	$90	Fair
Woodhaven 4911K	$260	Excellent



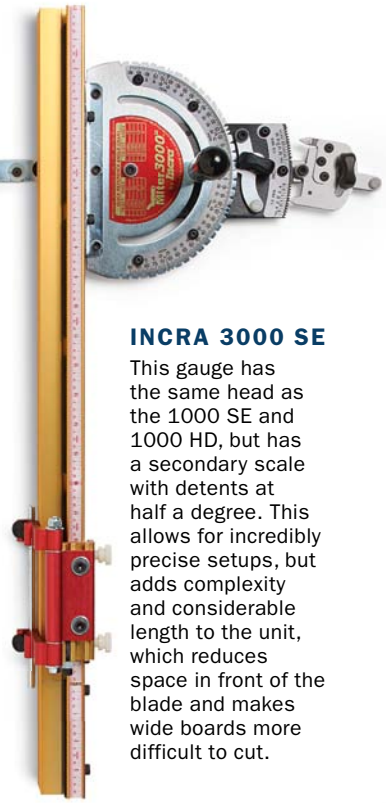
INCRA 1000 HD

This gauge has the most accurate head, with easy adjustments that held securely at any angle. The bar fits securely and glides smoothly. The telescoping fence has a dual flip-stop secured to it that is unmovable once tightened down.



INCRA 1000 SE

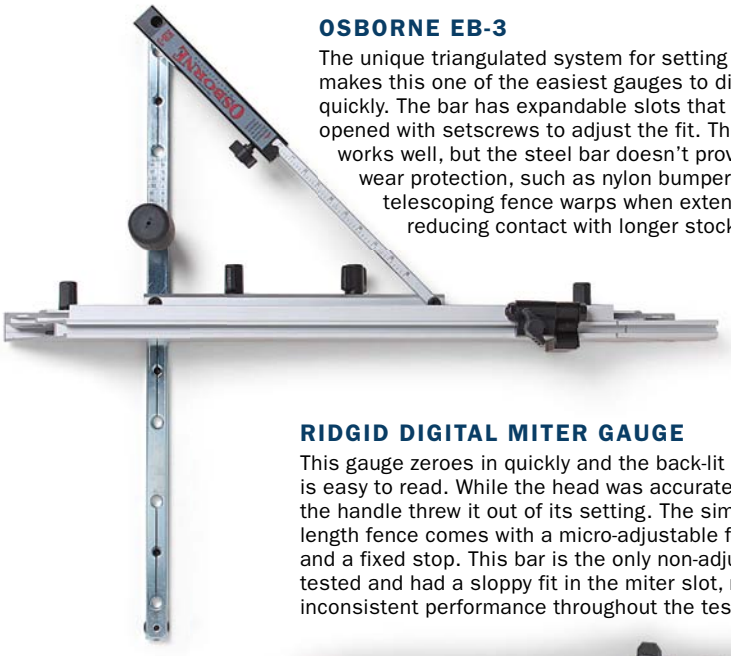
The gauge has the same miter bar, fence, and flip-stop as the other Incra gauges, but the 1000 SE's head only has detents every 5°. While this gauge performed well, it lacks the ease of fine adjustment, down to individual degree, that the 1000 HD has.



INCRA 3000 SE

This gauge has the same head as the 1000 SE and 1000 HD, but has a secondary scale with detents at half a degree. This allows for incredibly precise setups, but adds complexity and considerable length to the unit, which reduces space in front of the blade and makes wide boards more difficult to cut.

DETENT USABILITY AND RANGE	FENCE QUALITY/RANGE	FLIP-STOP QUALITY	MITER TEST	LONG STOCK TEST	OCTAGON TEST
Excellent, 0°-90° in 1° increments	Good, 18 to 31 in.	Very good	Very good	Good	Excellent
Very good, 0°-90° in 5° increments	Good, 18 to 21 in.	Very good	Very good	Good	Excellent
Very good, 0°-90° in ½° increments	Good, 27 to 49 in.	Very good	Excellent	Good	Excellent
Very good, detents at 0°, 15°, 22.5°, 30°, 45°	Excellent, 18 to 34 in.	Excellent	Excellent	Good (excellent with optional clamp)	Excellent
Good, detents at 0°, 10°, 22.5°, 30°, 45°	Good, 24 in.	Good	Very good	Good	Very good
Very good, 0°-45° in 5° increments, and 22.5°	Fair, 24 to 42 in.	Fair	Good	Good	Excellent
Digital, in increments of 1/10°	Fair, 24 in.	Fair	Fair	Very good	Fair
Fair, detents at 0°, 10°, 15°, 22.5°, 30°, 45°, 60°, 90°	Good, 24 In.	Excellent	Excellent	Good	Excellent



OSBORNE EB-3

The unique triangulated system for setting angles makes this one of the easiest gauges to dial in quickly. The bar has expandable slots that are opened with setscrews to adjust the fit. This works well, but the steel bar doesn't provide any wear protection, such as nylon bumpers. The telescoping fence warps when extended, reducing contact with longer stock.

WOODHAVEN 4911K

The head has a vernier scale and a screw-in brass detent pin that, while accurate, slows down adjustments. The large head is easy to read, but it can contact a ¾-in. stacked dado blade when angled. The fence has a pre-made sacrificial fence, a micro-adjust flip-stop, and a standard flip-stop, but the attached ruler is sharp and creates a harsh pressure point on your hand during use.

RIDGID DIGITAL MITER GAUGE

This gauge zeroes in quickly and the back-lit angle display is easy to read. While the head was accurate, tightening the handle threw it out of its setting. The simple, fixed-length fence comes with a micro-adjustable flip-stop and a fixed stop. This bar is the only non-adjustable one tested and had a sloppy fit in the miter slot, making for an inconsistent performance throughout the tests.