Compound Miter Saw REVIEW

Look for accuracy, power, and durability

Whether you're buying your first compound miter saw or adding a new one to your fleet, with the number of saws on the market, it can be a tough choice.

by Dave Crosby

How To Decide

For this article, I compared the features of 11 commonly available compound miter saws. As you decide which one will work best for you, consider what you will expect this saw to do. If it's going to be bolted to the bench in your shop, then accuracy and power will be important, but portability and bed configuration probably won't. For the occasional small trim job, however, light weight and compact size may be at the top of your list. Durability is important to everyone, but especially so when the saw will be used by many people on many sites or in unusually tough environments.

For most of us price is also important. If you need to buy one good saw for your own careful use, you'll probably look at these tools differently from the

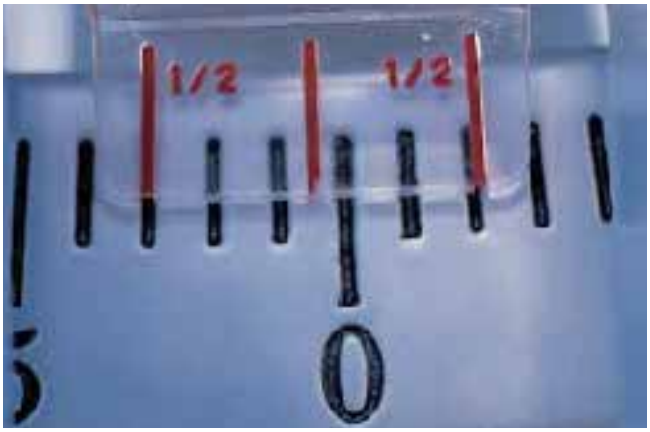

Figure 1. For precise work, look for a vernier scale, which allows for accurate settings to a fraction of a degree.

guy who's had two saws stolen and whose helpers just destroyed the third.

I'll point out some differences that may not be immediately apparent, but could help you make a more informed decision. Keep in mind that most saws have some sort of built-in compromise. For example, an attractively priced saw might have plenty of capacity for general use, but could be lacking the accuracy needed for fine work. Or the saw may be a pleasure to use, but too bulky to carry through a finished house very often. Certain features are desirable, no matter what you use the saw for. Ergonomics is a big consideration, particularly for trigger-switch design and miter/bevel adjustment. For the accurate measurement of fine miter adjustments, a vernier scale can also be helpful (see Figure 1). More power and cutting capacity is usually better, as is less noise.

10-INCH SAWS

Manufacturer Model	Hitachi C10FC2	Hitachi C10FCD	Makita LS1040	Milwaukee 6494-6	Ridgid MS1050	Ryobi TS230	Tradesman 8328
Street Price (by mfr)	$210	$270	$306	$329	$199	$199	$160
RPM	4900	3800	4600	4800	5200	5000	4500
Weight (lb.)	32	28.7	24.2	37.5	35	32.3	35
Specified Capacity (w x h)							
Crosscut (90°), no bevel	5 3/4 x 2 5/8 3 5/8 x 3 1/2	5 5/8 x 2 23/32 3 5/8 x 3 1/2	5 1/8 x 2 3/4 3 3/4 x 3 9/16	5 9/16 x 2 1/2 3 7/8 x 3 1/2	5 3/4 x 2 5/8	5 9/16 x 2 9/32 4 x 3 9/16	5 11/16 x 2 5/8
45 degree miter, no bevel	3 1/2 x 2 3/4	3 7/8 x 2 23/32	3 5/8 x 2 3/4 2 5/8 x 3 9/16	3 7/8 x 2 1/2 2 3/4 x 3 1/2	4 1/4 x 2 5/8	3 15/16 x 2 9/32	3 9/16 x 2 3/8
45 degree left bevel, no miter	5 1/8 x 1 3/4	5 5/8 x 1 25/32	5 1/8 x 1 3/8 3 3/4 x 1 7/8	5 9/16 x 1 13/16 4 x 2 1/4	5 3/4 x 1 7/8	not listed	3 11/16 x 2 3/16
45 right miter/45 left bevel	3 1/2 x 1 3/4	3 7/8 x 1 25/32	3 5/8 x 1 3/8 2 5/8 x 1 7/8	4 x 1 13/16 2 3/4 x 2 1/4	4 1/4 x 1 7/8	4 x 1 9/16	3 1/2 x 1 9/16
Miter Range (left/right)	>45/>60	>45/>45	>45/>52	>51/59	48/49	47/47	>45/>45
Max. Bevel Range (left/right)	45/—	45/45	45/—	50/3	45/3	45/—	45/—
Miter Detents (left & right)	0, 15, 22 1/2, 31.6, 45& 60R	0, 15, 22 1/2, 31.6, 45	0, 15, 22 1/2, 30, 45	0, 15, 22 1/2, 30, 45		0, 22 1/2, 45	0, 15, 22 1/2, 31.6, 45
Bevel Detents	0, 45	0, 45L, 45R	0, 45	see specs	0, 45	0,45	0, 45
Bed							
Size (inches)	6 1/4 x 20 5/8	7 1/4 x 19 5/8	5 1/4 x 18	7 x 24 1/4	5 7/8 x 19 1/4	5 3/4 x 18 1/8	7 x 19 3/4
Height (inches)	3 7/8	3 3/16	3	3 1/2	3	3 5/16	3 1/8
Fence							
Height left side (inches)	2 1/2 to 1 3/8	1 3/4	3 1/8	3 1/2	3 to 1 1/2	2 3/4 to 1 1/2	2 1/4 to 1 7/16
Height right side (inches)	2 1/2	1 1/16	3 1/8	2 7/16	2 1/2	2 3/8	2 1/8
Adjustable	no	no	yes, pivots	yes, flip-fence	includes aux. fence	no	

Accuracy Is Key

There are a lot of factors that go into making an accurate cut. Alignment of the miter table to the base, the fence to both base and table, and the blade to all of the above are just part of the picture. The manufacturing quality (including design, materials, and production tolerances) of the pivot assemblies and the motor are also important, and will affect how the saw will perform over time.

Detents. The importance of miter and bevel detents depends on the type of work you do. If you need to create perfect geometric figures — custom octagonal wood window frames or trim, for example — you will want extremely accurate, rock-solid detents. For production work on paint-grade trim, however, that degree of accuracy is less important than having a detent that won't wobble even when you don't tighten the miter lock. And if you spend most of

Figure 2. A miter detent override helps with adjustments close to the detent. When the override is disengaged the miter detents function; when engaged they do not.

12-INCH SAWS

Manufacturer Model	Bosch 3912	Delta 36-235	DeWalt DW705	Makita LS1220
Street Price (by mfr)	$335	$299	$379	$438
RPM	4700	3500	4000	3200
Weight (lb.)	43	50	38	36.4
Specified Capacity (w x h)				
Crosscut (90˚), no bevel	7 5/8 x 2 1/2 5 7/8 x 3 7/8	8 x 2 1/2 7 x 3 1/2	7 7/8 x 2 1/2 5 7/8 x 3 7/8	8 x 2 1/2 6 x 3 7/8
45 degree miter, no bevel	5 1/2 x 2 1/2 4 1/4 x 3 7/8	5 3/4 x 2 1/2	5 1/2 x 2 1/2 4 1/8 x 3 7/8	5 5/8 x 2 1/2 4 1/4 x 3 7/8
45 degree left bevel, no miter	7 5/8 x 1 3/4 5 5/8 x 2 3/4	6 1/2 x 2 1/2 8 x 1 3/8	7 7/8 x 1 3/4 5 7/8 x x2 3/4	7 7/8 x 1 3/4 5 7/8 x 2 3/4
45 right miter/45 left bevel	5 1/2 x 1 3/4 4 1/4 x 2 3/4	5 1/4 x 1 1/2 4 5/8 x x2 1/4	not listed	5 1/2 x 1 3/4
Miter Range (left/right)	52/52	>47/>47	>48/>47	>48/>48
Max. Bevel Range (left/right)	45/—	45/—	45/—	45/—
Miter Detents (left & right)	0, 15, 22 1/2, 31.6, 45	0, 15, 22 1/2, 31.6, 45	0, 15, 22 1/2, 31.6, 45	0, 15, 22 1/2, 31.6, 45
Bevel Detents	0, 33.9, 45	0, 45	0, 45L, 45R	0,45
Bed				
Size (inches)	8 1/4 x 24 15/16	8 3/4 x 28 1/8	7 7/8 x x22 1/8	8 1/4 x 22 3/4
Height (inches)	3 13/16	4 1/2	4 1/16	4
Fence				
Height left side (inches)	5 1/8	5	5 1/16 to 4 1/8	4 9/16 to 1 5/8
Height right side (inches)	4 3/16 to 2 1/4	2 9/16	4 1/8. to 2 9/16	4 9/16 to 2 7/16
Adjustable	yes, slide	yes, slide	yes, slide	yes, pivots

your time carefully finishing houses that aren't quite square, the ability to easily and accurately come a fraction of a degree out of a detent will be a deciding factor. A miter detent override (Figure 2) can be helpful for these close adjustments, but some saws are designed so well that this feature is not necessary.

Blades and power. When a free-spinning blade is suddenly slowed down under load, the deceleration can create a slight instability, or "flutter," which may result in an unacceptable quality of cut (Figure 3). In the worst case, the blade will wander through the cut or create two distinct edges on the kerf,

Figure 3. Here's what an unstable blade will do to the quality of your cut.

one where the blade entered and one where it slowed down under load. The severity of the problem varies depending on whether the motor is simply under-powered, or is underpowered but geared to spin the blade at a higher rpm than the motor can sustain. If both conditions are present, however, a clean cut will be a real trial. Inaccuracies can also be caused by operator error or a low-quality blade.

Most instruction manuals recommend that you let the blade come to a full stop before raising the blade or removing the work piece. The blade deceleration at this point, especially with a brake, can once again cause instability in the blade and further detract from the quality of the cut. If you're just butchering dimensional lumber, none of these considerations matter much, but if you're making cabinet face frames, getting a clean cut is a big deal. In any case, nearly all of the saws reviewed here will benefit from the addition of a better quality blade, so don't forget to figure that into your purchase cost.

Sufficient power is important for producing a good cut. Fortunately, we are seeing more power ratings in output watts, which is a more reliable indicator of power than an amperage rating. In general, horsepower ratings should be regarded with suspicion, since not everyone figures horsepower the same way. Also, on a sufficiently powerful motor, electronic speed control can contribute greatly to the performance of the tool and the quality of the cut.

Bigger vs. Better

The decision to go with a 10-inch or 12-inch saw again depends on personal preference and the type of work you do. All things being equal, a smaller blade may be more stable and consequently more accurate. Quality of design and manufacture can make a difference, however — a good 12-inch saw can be far more precise than a bad 10-inch saw.

With compound miter saws, unlike their sliding brethren, there is a direct relationship between blade size and cutting capacity. But don't forget about the effect of an auxiliary fence. A piece of $^{3}/_{4}$- or $^{7}/_{8}$-inch stock against the fence can provide the extra vertical capacity you need. Likewise for horizontal capacity, if you add thickness to the bed.

Bed, table, and fence design. Most of the saws reviewed here have some variation in production tolerances on the miter table to bed alignment, generally in the 0.012-inch to 0.017-inch range. This sort of misalignment can result in minor working inaccuracies that will be significant in some types of work but not in others. In the cases where a miter table and bed were perfectly aligned, I noted that in the comments.

Bed design will affect portability, setup, and user comfort. When judging how easy it will be to carry a saw, consider not only weight and size, but also the shape of the saw and how many sharp edges you have to deal with. If you like to anchor the saw to a workbench, sawhorses, or a portable saw stand, make sure the manufacturer provides mounting holes that accept the type of fasteners you're likely to use. Finally, some saw tables are designed to match the height of a stack of standard dimensional lumber, making it easy to support a long work piece using materials already on site.

The Choice Is Yours

I've listed the standard features of each saw in the charts on the previous pages so you can compare those that are most important to you. Vertical and horizontal cutting capacities are listed per manufacturer's specifications; where there are two sets of figures, the second number indicates the saw's maximum capacity with the addition of an auxiliary fence. The prices listed in the chart were supplied by the manufacturers, but in many cases you can buy these saws for much less if you shop around.

Dave Crosby*, formerly a contractor in Santa Fe, N.M., is tool editor at the* Journal of Light Construction.

10-INCH SAWS

Hitachi C10FCD

Power: Electronic speed control, soft start, and low noise level with smooth power transmission makes this saw pleasant to use.

Detents: Strong, no detent override, difficult miter adjustments close to the detent.

Scales: Cast miter scale is easy to read; bevel scale could be improved with a line on the pointer.

Fence: Because it's a double-compound saw, the fixed fence is relatively low.

Bed: Unusually light, but looks durable enough. Inclusion of both large and small holes for securing to bench are a welcome feature.

Guard: Smooth, retracts easily.

Controls: Vertical handle. Switch feels cheap, hard action. Location and action of safety button could get tiresome. Good bevel adjustment, especially for a double-compound saw (inset photo).

Misc: Good dust collection; good portability. Overall construction doesn't appear to be suitable for sustained heavy use. Given the benefits of a reasonably priced double-compound 10-inch saw, with a few design upgrades it would be a saw I'd want.

Hitachi C10FCD controls

Hitachi C10FC2

Power: Adequate

Detents: Positive, secure. No miter detent override, but with a little coaxing, you can make 1/2-degree adjustments.

Scales: Good miter scale. Bevel scale is not as readily visible as on other saws, and could be improved with the addition of a line on the pointer.

Fence: Fixed.

Guard: Doesn't look like the most durable of the lot.

Controls: Vertical handle. Switch action is harder than some, but not bad.

Misc: 60-degree right miter capacity is noteworthy — this may make it a good choice for some users. Could use a set of smaller attachment holes in base. With the amount of plastic protruding from this saw, I have to wonder about its durability in rough use.

10-INCH SAWS

Makita detents, from below

Makita LS1040

Power: Plenty — makes smooth, easy cuts at 860 watts continuous output, 1,800 watts peak. Makita was one of two manufacturers willing to provide power figures in continuous output watts instead of just peak output watts or watts of power consumption. Perhaps other manufacturers will follow suit.

Detents: Action of the spring-steel miter lock on cast detents is rough (inset photo). Slight wiggle in detents if miter lock is not tightened.

Scales: Miter scale is good; bevel scale pointer tends to catch a lot of sawdust and become obscured.

Fence: Left fence pivots for bevel clearance; fast, easy to use, works well.

Bed: Dead accurate. 3-inch height matches stacked 2-by material.

Guard: Good action.

Controls: Left- or right-handed saw operation very good with vertical handle and a well-placed switch. Bevel adjustment handle looks sturdy, works well. A redesigned miter lock with a detent override would be a welcome improvement. Not easy to get 1/2 degree out of detent.

Misc: Light, well made, compact, easy to carry. If comparatively short horizontal cutting capacity and miter detent/lock design were addressed, this saw would be hard to beat.

Milwaukee 6494

Power: 750 watts continuous output. Motor slows down slightly more than I expected in compound cuts through a 2x4, but not enough to be a problem — it still felt stronger than most of the other 10-inch saws, certainly enough power for normal use.

Detents: Solid, well-designed action; good override, easy adjustments near detent.

Scales: Cast, two-color, readable.

Fence: Flip-fence (photo, below left) is fast, easy, secure, and provides plenty of support.

Bed: Good overall; a set of smaller mount holes in base would be helpful.

Guard: Retracts inside housing. Because you can't manually retract the guard, this durable design would be even better if the initial retraction came earlier in the chop stroke so the guard didn't interfere with vertical capacity.

Controls: Vertical handle, good switch location, bevel adjustment handle is compact, easy to use, looks strong.

Misc: Unique spring-loaded bevel adjustment configuration allows for substantially more left and right travel than is listed in the specs. This innovative and useful design would benefit from the addition of positive bevel detents at zero and 45 degrees to help locate these settings quickly and accurately. Until this is addressed, this saw is probably not going to be a finish carpenter's first choice, but it appears to be well suited for rough environments.

Milwaukee flip fence

10-INCH SAWS

Ridgid MS1050

Power: Adequate.

Detents: Holds strong in miter detents without tightening lock. Not bad at 1/2 degree out of detent, but could be better.

Scales: Cast miter and bevel scales are durable and easy to read.

Fence: Auxiliary fence is included with saw. Easy to install, provides enough capacity to cut through a 4x4.

Bed: Exactly 3 inches high, nice touch.

Guard: Smooth, easily retractable, doesn't interfere with line of sight. Retraction rate is especially well-designed.

Controls: Good switch, nice miter and bevel adjustment handles. Chop lock, which holds saw in the "down" position, is stiff. Stop pin at zero bevel, when released, provides about 3 degrees of right bevel.

Misc: All in all, a thoughtful design with many good features but not ready for the big league yet. With the addition of a kerf plate, improved miter adjustment near the detents, and a little more power with a lot less noise, this saw will be a strong contender in the lower price range.


Ridgid MS1050

Ryobi TS230

Power: Adequate.

Scales: Easy to read miter and bevel scales, both look durable. Bevel scale is readable from left or right side of the saw.

Fence: Fixed.

Bed: Sharp edges on base, odd bed height.

Guard: Easily and safely retractable, good action, good visibility.

Controls: Good bevel adjustment; switch is better than some, but could still be smoother.

Misc.: More play in the table-to-bed connection than any saw tested — table moves 0.010-inch when you tighten the miter lock (photo, above).


Testing the Ryobi miter lock


Ryobi TS230

Tradesman 8328

Power: Adequate.

Detents: Accurate adjustment near miter detents is difficult.

Scales: Cast miter scale easy to read, looks durable. Pointer on bevel scale makes accurate readings difficult.

Fence: Fixed.

Bed: Odd height.

Misc: Wouldn't be my first choice, but if you're on a budget it's worth a look. Other than the miter adjustment near the detents, there was nothing particularly wrong with this saw, but nothing about it said "heavy-duty" either.

Tradesman 8328

12-INCH SAWS

Bosch 3912

Bosch slide fence

Bosch 3912

Power: Feels like it could benefit from a little more power under load, but not bad.

Detents: Bevel detent for crown at 33.9 degrees is a nice feature. Miter lock, detent override, and vernier scale allow for easy adjustment close to detent.

Scales: Easy to read miter scale with 1/4-degree vernier. Pointer on relatively small bevel scale could use improvement.

Fence: Left fence slides for bevel clearance (photo, left), provides plenty of support; rough surface seems to help keep work in place.

Bed: Sliding bed allows use of the work clamp on the left side even at 45/45.

Guard: Easy to retract with right or left hand. The guard on the model I tested came loose — maybe a little thread-lock is in order here.

Controls: Ambidextrous D-handle switch is comfortable; good miter and bevel adjustments; slide-fence lock is easy to use.

Misc: The 6-position work-clamp is fast, easy, and works well. The manual claims a bevel range of 3 left/50 right. While this is true, you need wrenches to do this, unlike other saws advertised with this capacity. The blade that comes with this saw does not do it justice; overall performance and quality of cut were dramatically improved with a better blade.

Delta 36-235

Delta miter adjustment

Delta 36-235

Power: Adequate.

Scales: Both miter and bevel scales are well designed and easy to read, 1/2-degree vernier.

Fence: Sliding left fence.

Bed: Good work support.

Controls: Controls are generally good, miter lock holds fast. Unfortunately, the miter adjustment at the far end of the range both left and right did not provide clearance for my knuckles on the legs of the saw (inset photo).

Misc: This is the only 12-inch saw tested that would not cut a 1x6 held vertically against the fence. Low marks for portability.

12-INCH SAWS

DeWalt 705

Power: Enough for all but the most discriminating users; but it does slow down under heavier loads, such as thicker hardwoods, which affects the quality of cut. This can usually be overcome with a better blade and a little extra attention to feed rate. Still better than all but the LS1220.

Detents: With care you can get solid adjustments at a half-degree or less from the detent, but there's room for improvement.

Scales: Well-designed, easy-to-read miter scale with 1/4-degree vernier and degrees marked forward and backward. Bevel scale is durable, contrasting color is helpful, larger scale and better pointer would be welcome (photos, right).

Fence: Left fence slides, works well.

Bed: Dead on.

Guard: Good, easy retraction left or right.

Controls: Comfortable, well-placed, easy to use.

Misc: For many users, this saw has become the standard, partly because of its attractive price and easy availability, and partly because it's a good saw. I've heard no complaints except from cabinetmakers who were not satisfied with the saw for precise work. In this regard, it could benefit from more power and electronic speed control. For the price, I don't think you could go wrong.

DeWalt bevel scale

DeWalt miter vernier scale

Makita LS1220

Power: 870 continuous, 2,300 max. This saw has plenty of power, electronic speed control contributes further to a good quality of cut.

Detents: Excellent.

Scales: Miter scale is easy to read, bevel scale is a decal, which was disappointing.

Fence: Pivot fence is fast, easy to use, works well.

Bed: Dead on.

Guard: Easy operation, smooth action, no problems.

Controls: Miter adjustment is excellent, even at less than 1/2 degree from the detent (inset photo). I don't like the safety button on the D-handle switch; otherwise, very good controls overall.

Misc: By far my favorite saw of the lot. Miter table swing is smoothest of any saw reviewed, adjustments are fast, easy, and secure. Easy to carry for a 12-inch saw, well designed, and a pleasure to use. I was curious about its overall accuracy, so I put it through the octagon test (see "Sliding Compound Miter Saws," 8/99) but with maple this time. With a good quality blade (save the blade that comes with this saw for wood butchery), this saw cuts a perfect octagon, which requires extraordinary accuracy. With the addition of a vernier and a larger, more durable bevel scale, this saw would be in a class by itself.

LS1220 miter adjustment