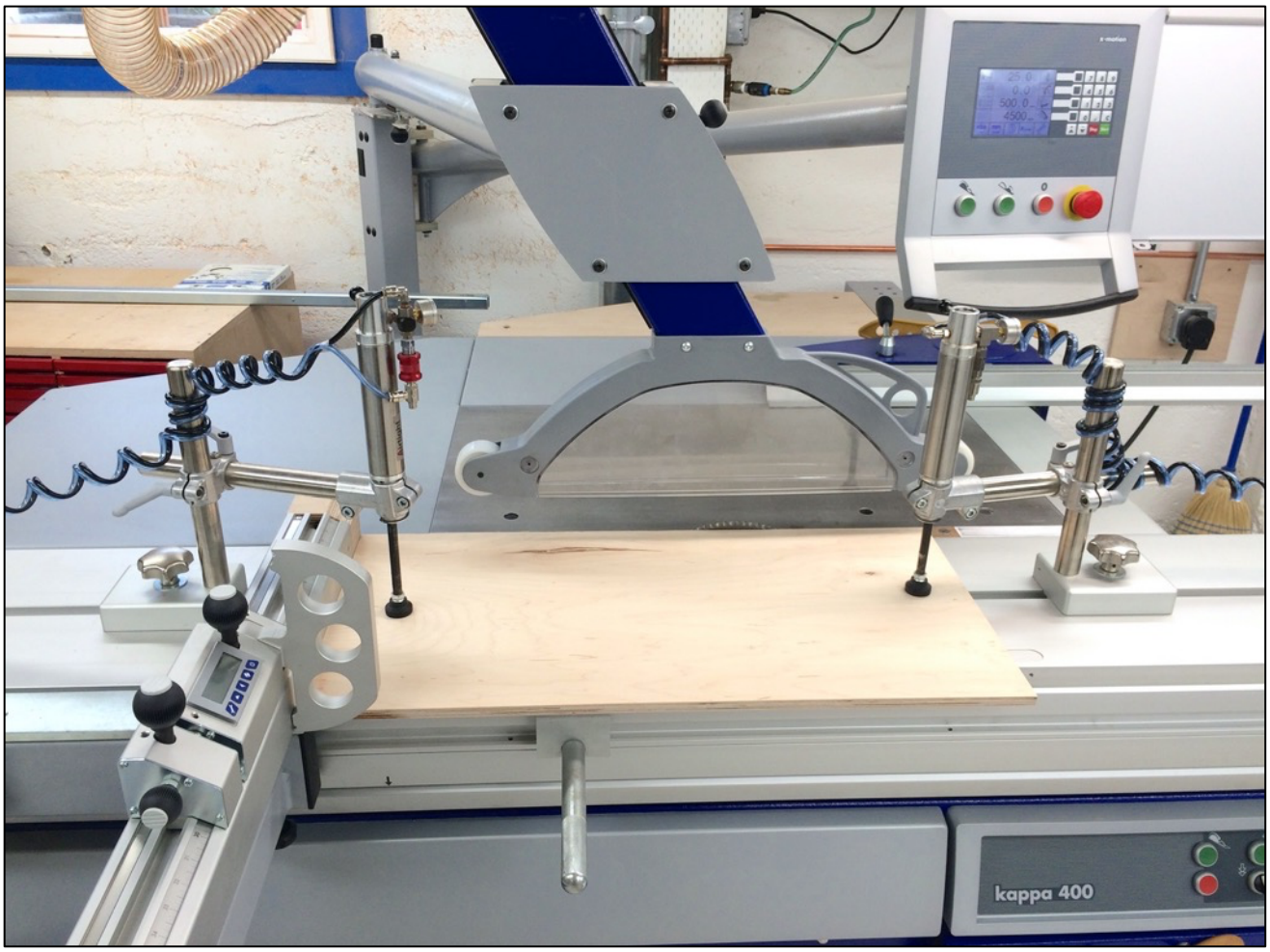
Parallel Fence Alternatives for the Felder X-Roll Sliding Table

– one user's experience

The sliding table is an ideal platform for breaking down panel materials to exact and consistent widths, and for making straight-line rip cuts in solid materials. Once the material is positioned on the sliding table and clamped down, the process of sawing the material is as simple as pushing the sliding table forward as the saw blade makes the cut. The resulting cut is perfectly straight, and the operation is far safer than trying to manually guide material through the rotating saw blade as is typical on a conventional cabinet saw.

If the material has sufficient width where it's positioned against the crosscut fence, and that edge is registered against the crosscut fence and clamped to the sliding table, the resulting cut will be square to the face against the fence. The following photo illustrates the point: the panel being cut to width has sufficient contact against the crosscut fence to ensure (within reason) that the resulting cut is square to the edge against the crosscut fence. In this situation, the resulting cut edge is also parallel with the opposite edge since that edge is also perpendicular to the crosscut fence, and the panel should be the same width at both ends.

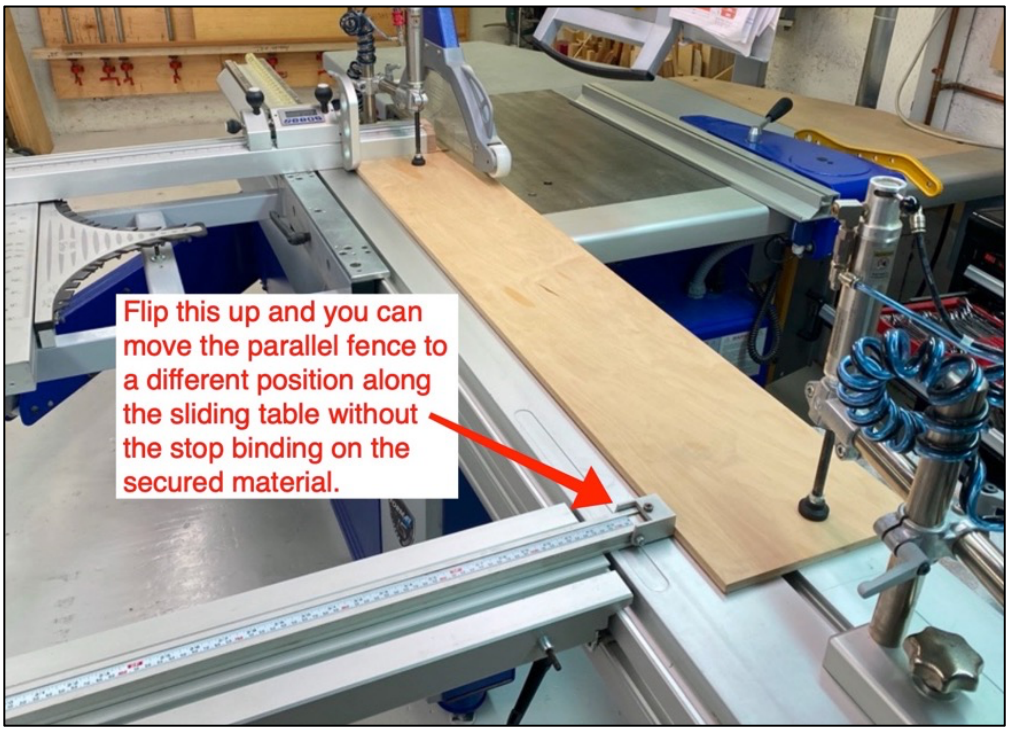


But what about a situation where the end of the material that registers against the crosscut fence is narrow – narrow enough that you can't rely on that edge to align a much longer piece of material square to the crosscut fence? Consider the situation as shown in the following photo – where the material is very long, and not sufficiently wide where it abuts the crosscut fence to assuredly align for a 90° result? The results of this cut are unlikely to produce a panel that is equal width at both ends. This

workflow arises frequently when cutting side panels for a tall bookcase, or a long shelf, just to pick two obvious examples.

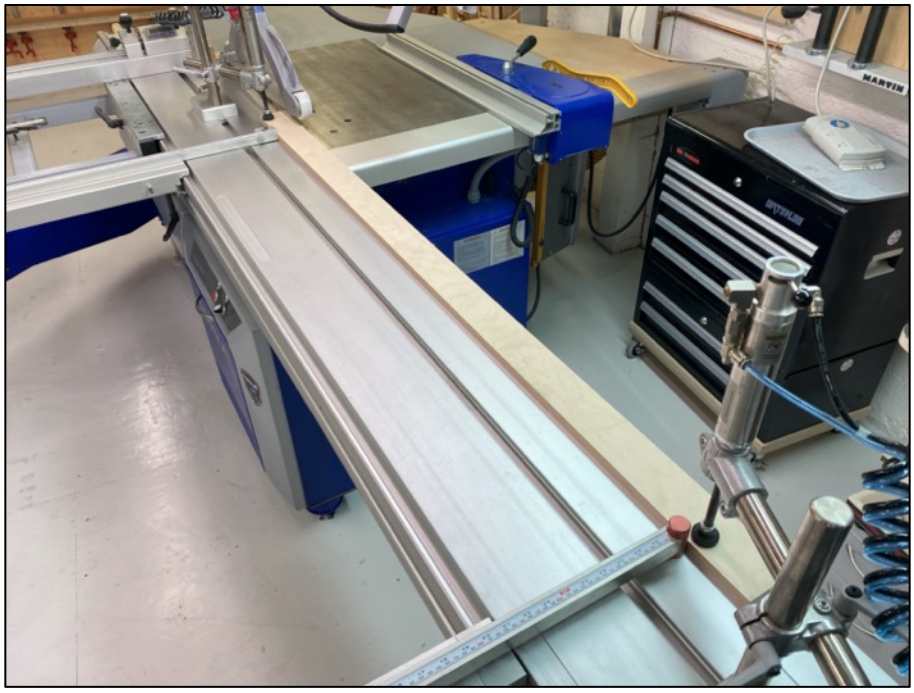
In the situation above, it would be immensely helpful to have a second stop to register against at the near end of the material. If that stop position (relative to the cutting edge of the saw blade) precisely agrees with the stop on the crosscut fence, then the resulting panel would be equal width at both ends.

This is the function provided by a parallel fence – so named because it ensures the cut edge is parallel to the opposite (or reference) edge. Shown below is the same situation as above, but with a parallel fence installed on the slider to provide that second reference stop. With the material pushed against both stops, then clamped to the table, so long as the two stop positions are identical distances from the cutting edge of the saw blade, the resulting off-cut will be equal width at both ends.



The sliding table can also be used to "straight-line rip" solid material – positioning the material to the left of the saw blade, clamping it to the sliding table, and making the cut by pushing the sliding table forward. If the material is wide enough to use the crosscut fence stop as one reference point, and a parallel fence in added with a stop that is positioned identically, the sliding table can be employed for ripping operations as shown below (without parallel fence on the left, with parallel fence on the right).

If the material is so narrow that the flip stop on the crosscut fence can not be positioned close enough to the saw blade for the desired final width, two parallel fences can be employed for a straight-line rip operation as shown below.



Setup for this operation takes a bit longer than using the rip fence, but when cutting long, awkward, or heavy pieces, there is much less risk of the stock wandering off the intended cutline using this method.

The routine seems somewhat foreign to many who have been trained using traditional cabinet saws. However, the process is fairly simple, but does require a slightly altered mind-set to work against the stops on the left of the blade rather than against a rip fence.

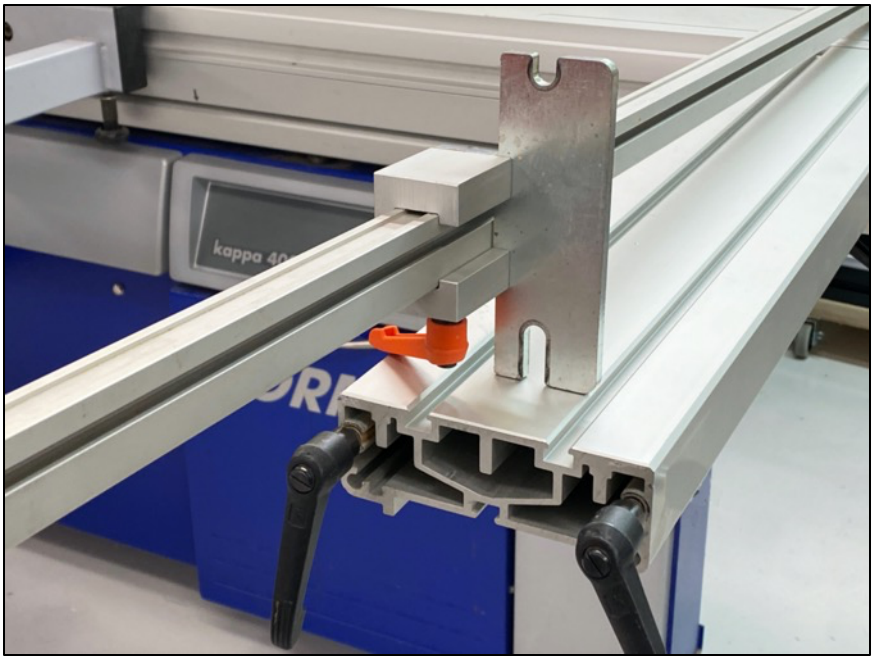
Clamps are also very useful if not mandatory for these type of machining operations. A pair of air clamps as shown in the photos makes setup and operation very convenient, but manually actuated clamps can be just as effective but are not as convenient. In my shop, I have the pair of air clamps configured as “master” and “slave” units, where the clamp closest to the infeed end of the slider can trigger closure of the clamp at the outfeed end near the crosscut fence.

Which parallel fence product is best?

This question comes up again and again online. Each of the parallel fence alternatives has some advantages and some disadvantages. I own all three of the versions discussed in this document and have even made my own.

The Felder parallel fence mounts to a 1-meter extension table that hangs on the side of the sliding table. That table is very heavy. The removable parallel fence element attaches to the end of the extension table with two Kipp levers as can be seen in the photo below-right. This setup provides the flexibility to use the extension table with or without the parallel fence element attached. Having that extension table without the parallel fence unit attached can be helpful in supporting large plywood panels hanging off the edge of the sliding table – it balances the material like a second outrigger table.

The following photo illustrates the parallel arm attachment/removal setup for the Felder parallel fence stop. Loosen the two black Kipp levers, and the unit will slide sideways and can then be lifted off leaving the bare extension table to support large overhanging materials.



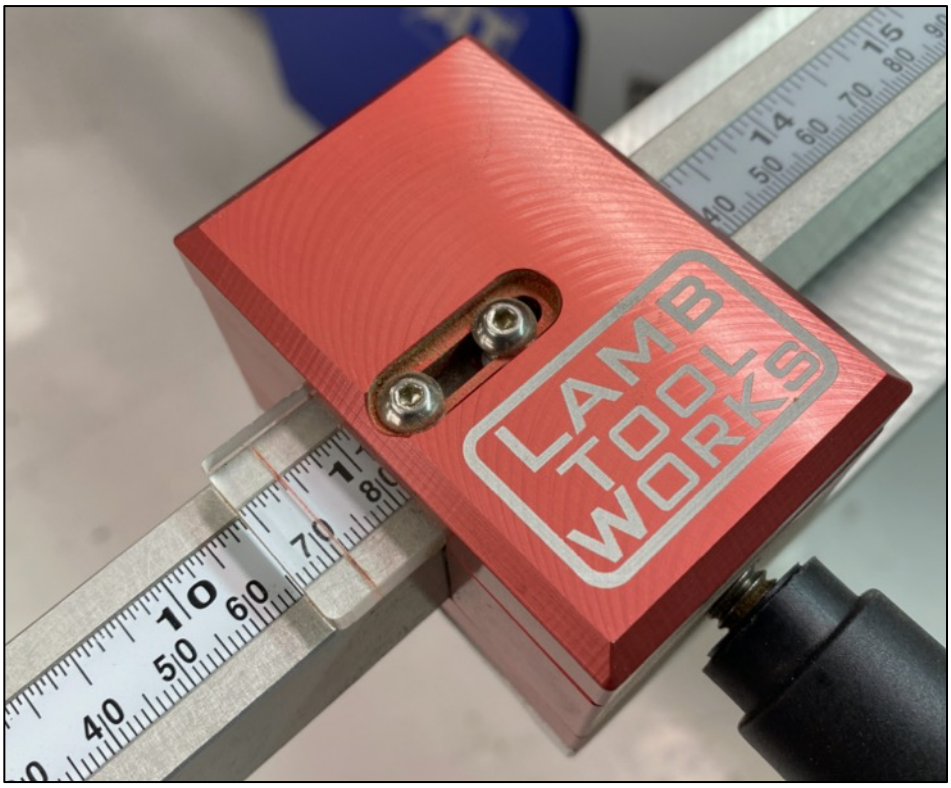
The Felder parallel fence stop will extend outward to cut material up to 43-inches in width. Some people consider that length excessive, making the fence unwieldy since the movable stop bar sticks out 82-inches from the side of the sliding table when fully extended.

Lamb Tool Works produces another type of parallel fence that operates in a similar manner but is more compact. The following photo illustrates the Lamb Tool Works parallel fence mounted on the sliding table next to the 1-meter extension table that is part of the Felder parallel fence system. Unlike the Felder system, the Lamb Tool Works parallel fence components are not removable, so it cannot perform double duty as an extension table. The parallel fence stop on the Lamb unit will extend out to facilitate cutting material up to 26-inches in width.

When fully extended the Felder parallel fence unit extends fully 82-inches from the edge of the sliding table. By comparison, the Lamb Tool Works version extends only 51-inches from the edge of the sliding table. The following photo illustrates the differences between the two versions in overall length when fully extended.

The primary problem with the Felder solution is that the sighting lens with the red scribe line used to set the distance of the stop is too far away from the measuring tape to get a precise reading. That excessive distance between the red line and the tape markings can lead to considerable parallax error when setting the distance. The sight lens does have two scribe lines to help the user align their eyesight vertically, but the scribe lines are very wide making precise placement of the stop position challenging and error prone.

The Lamb Tool Works parallel fence tackled two perceived problems with the Felder fence. First, the sight lens is directly above the measuring tape, with a much narrower red scribe line, thus eliminating most of the parallax error mentioned above and making it easier to set the stop to a precise measurement.

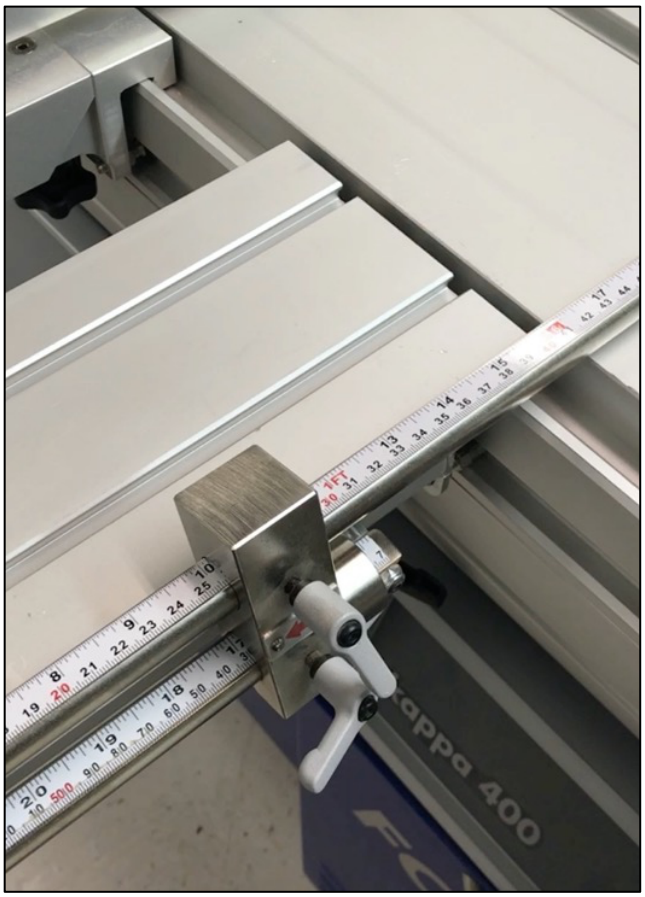


Second, it's a smaller system overall, less heavy, and easier to put on and take off the machine. Being a smaller fence, its capacity is more limited (about half that of the Felder fence). At first this may seem a disadvantage, but in practice, any material that's over 26-inches wide can, with care, be accurately registered square against the crosscut fence making the use of a parallel fence less necessary. If the stock being cut is 25-inches wide or more, a parallel fence is decidedly less important. It's only when cutting long narrow (under 25-inches wide) panels and sold stock that necessitates having two registration stops to achieve square and parallel results. Therefore, I don't consider the smaller size of the Lamb Tool Works fence a disadvantage.

However, unlike the Felder parallel fence, the attachment point for the parallel stop is permanently secured to the extension table that's supplied with it – this limits its utility as an extension table. When I'm working with large panels, squaring them up and bringing them to size, I want the ability to get the parallel fence element off the top of the extension table, otherwise I must lift the panels up and over the parallel fence when breaking down the panels. Having that fence element sticking up makes moving large/heavy panels around on the sliding table more challenging, and it is easy to gouge the bottom side of a panels as they are repositioned on the sliding table. In that regard, the Felder fence is more useful for large panel work.

At one time, Mac Campshure (who makes Airtight Clamps) made a parallel fence element that attaches to the SIDE of the Felder 1-meter extension table (the same extension table that's provided with the Felder parallel fence option). Mac's fence can be rotated up for use as a parallel fence or rotated down off the side of the extension table, leaving the tabletop clear for easily sliding large panels around on top of the sliding table. His solution was the best of breed IMO - it has none of the disadvantages of the

Felder or Lamb Tool Works parallel fence solutions. Mac's version can be seen attached to the side of the 1-meter extension table in the following photos.



However, Felder has discontinued selling the longer 1-meter extension table without the parallel fence element included, and because of this, Mac has not promoted his parallel fence option and may no longer offer it as an option.

Challenges in accuracy.

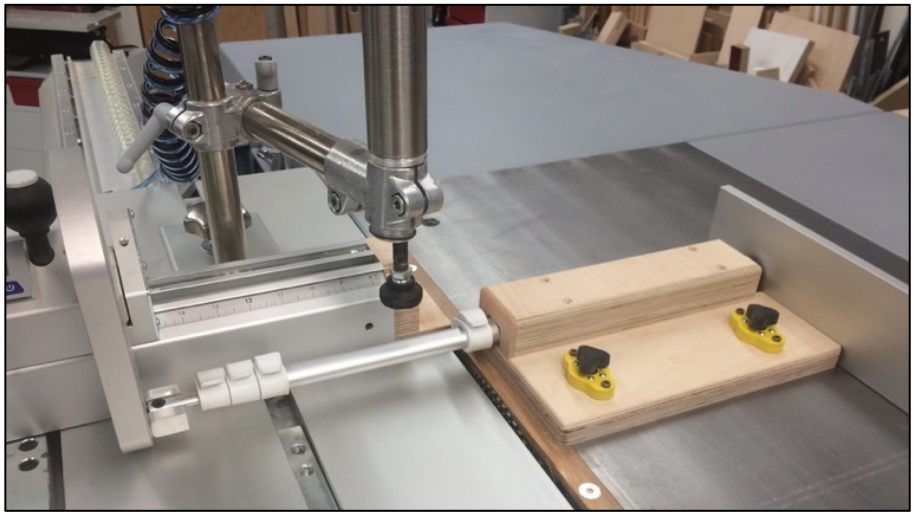
The flaw with all the parallel fence systems is accuracy. When I'm building kitchen cabinets, half a millimeter difference in width of a cabinet side/top/bottom can drive me crazy. Imagine cutting up the panels for a cabinet and discovering that the side panels have a 0.5mm difference from one end to the other. That difference means the error will appear either at the front of the cabinet where the sides join the top or bottom, or the error will be at the back of the cabinet, making it impossible to get a tight seam between the back panel and the perimeter of the cabinet case all around.

I have digital crosscut stops that are calibrated to +/- 0.05mm which is sufficient accuracy to get repeatable stop placement. How do you get that on the parallel fence? One potential solution is the Lamb Tool Works parallel fence version with digital readout (DRO) to provide similar accuracy as shown in the photo below.

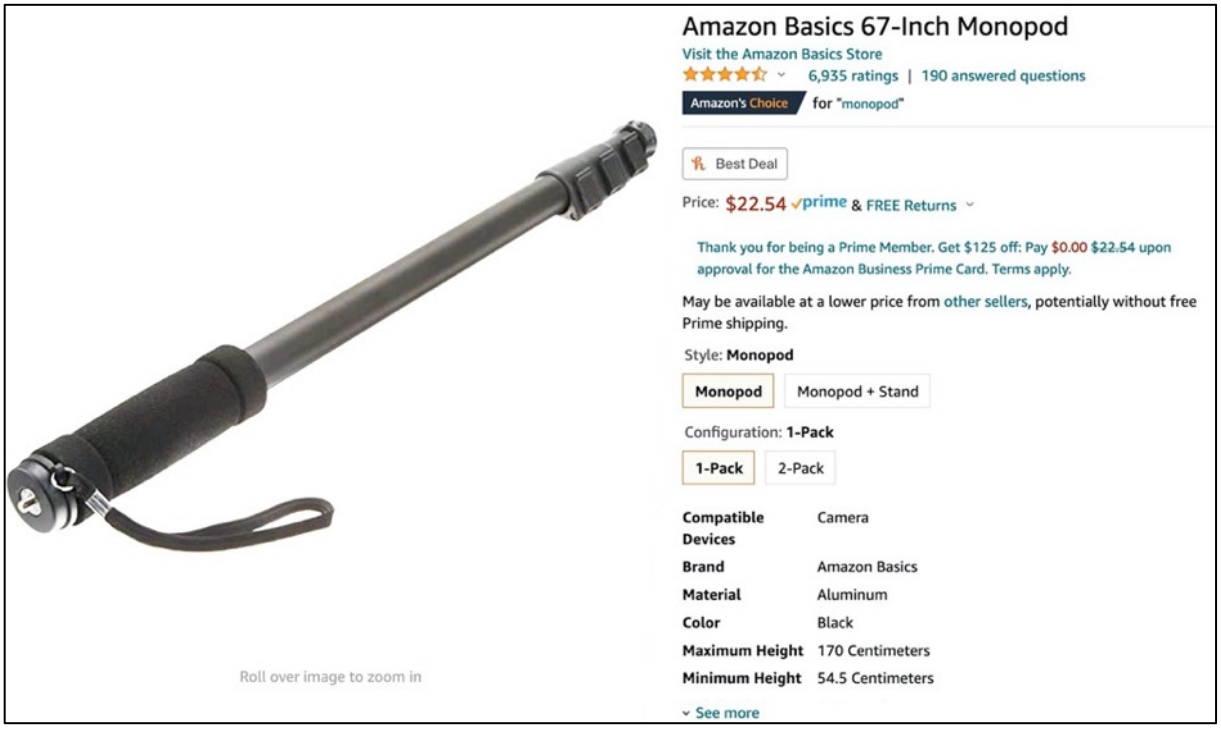
In my workflow, I have digital stops on the crosscut fence, so if I need a 7-foot-long panel that is 19.220" wide, I can set the crosscut stop to 19.220" exactly (and know it's precisely set) and then I just want to copy that distance to the parallel fence so that the two stops are precisely the same distance from the saw blade.

To overcome the potential inaccuracies setting the parallel fence stop, I decided to build a device that would essentially copy the crosscut fence stop position to the parallel fence stop. There are several ways to approach making a device that will perform this function. Such a device can greatly improve the ability to force the parallel fence stop position to accurately agree with the crosscut fence stop – without reverting to a digital readout on the parallel fence.

The original prototype of my copy device for the parallel fence is shown below. It consists of a plywood base with two magnetic switches that will securely attach the base to the cast iron top of the machine. It includes a telescoping arm that can be pulled out and positioned against the crosscut fence stop and locked in position. Then the sliding table is moved to the position the parallel fence stop opposite the telescoping arm, and the parallel fence stop is then moved against the end of the telescoping arm and secured. This effectively copies the crosscut fence stop position (relative to the saw blade) to the parallel fence stop location.



The telescoping Monopod and magnetic switch used in this version are available from Amazon.



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Style: **Monopod**

Monopod | Monopod + Stand

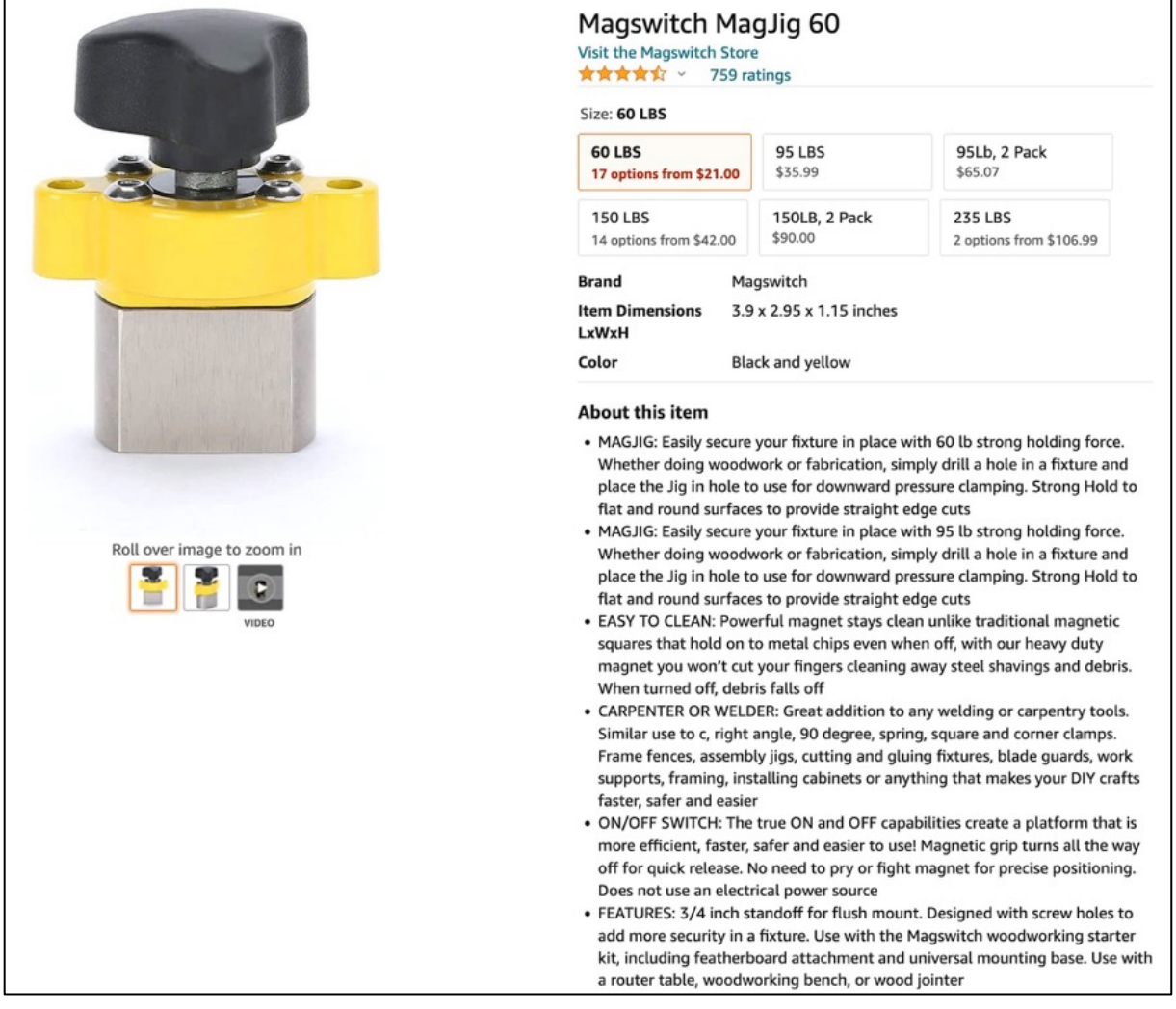
Configuration: **1-Pack**

1-Pack | 2-Pack

Compatible Devices	Camera
Brand	Amazon Basics
Material	Aluminum
Color	Black
Maximum Height	170 Centimeters
Minimum Height	54.5 Centimeters

Roll over image to zoom in

See more



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Size: **60 LBS**

60 LBS 17 options from $21.00	95 LBS $35.99	95Lb, 2 Pack $65.07
150 LBS 14 options from $42.00	150LB, 2 Pack $90.00	235 LBS 2 options from $106.99

Brand	Magswitch
Item Dimensions LxWxH	3.9 x 2.95 x 1.15 inches
Color	Black and yellow

Roll over image to zoom in

VIDEO

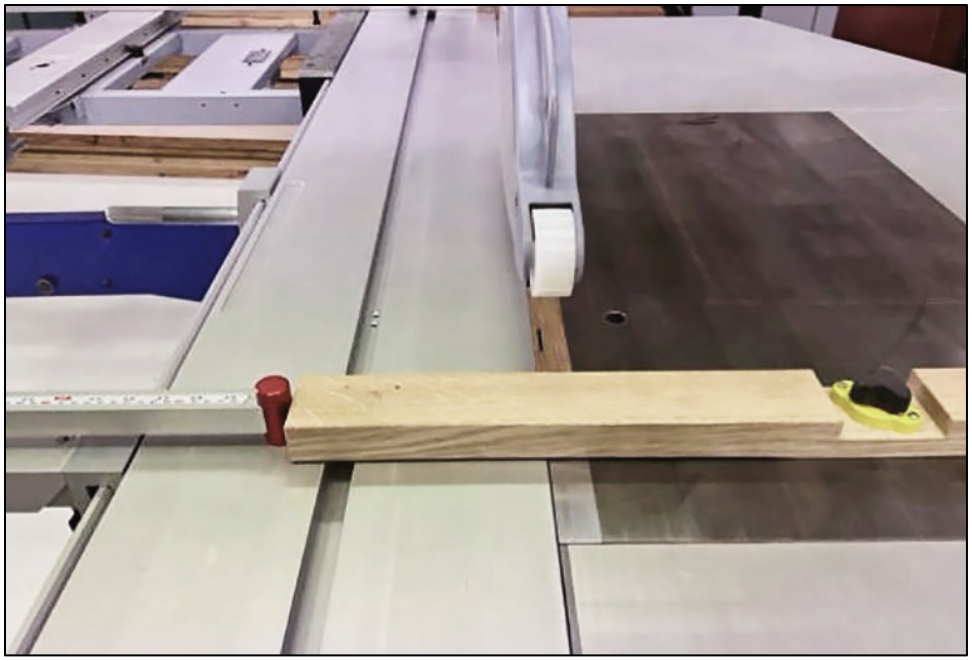
About this item

- MAGJIG: Easily secure your fixture in place with 60 lb strong holding force. Whether doing woodwork or fabrication, simply drill a hole in a fixture and place the Jig in hole to use for downward pressure clamping. Strong Hold to flat and round surfaces to provide straight edge cuts
- MAGJIG: Easily secure your fixture in place with 95 lb strong holding force. Whether doing woodwork or fabrication, simply drill a hole in a fixture and place the Jig in hole to use for downward pressure clamping. Strong Hold to flat and round surfaces to provide straight edge cuts
- EASY TO CLEAN: Powerful magnet stays clean unlike traditional magnetic squares that hold on to metal chips even when off, with our heavy duty magnet you won't cut your fingers cleaning away steel shavings and debris. When turned off, debris falls off
- CARPENTER OR WELDER: Great addition to any welding or carpentry tools. Similar use to c, right angle, 90 degree, spring, square and corner clamps. Frame fences, assembly jigs, cutting and gluing fixtures, blade guards, work supports, framing, installing cabinets or anything that makes your DIY crafts faster, safer and easier
- ON/OFF SWITCH: The true ON and OFF capabilities create a platform that is more efficient, faster, safer and easier to use! Magnetic grip turns all the way off for quick release. No need to pry or fight magnet for precise positioning. Does not use an electrical power source
- FEATURES: 3/4 inch standoff for flush mount. Designed with screw holes to add more security in a fixture. Use with the Magswitch woodworking starter kit, including featherboard attachment and universal mounting base. Use with a router table, woodworking bench, or wood jointer

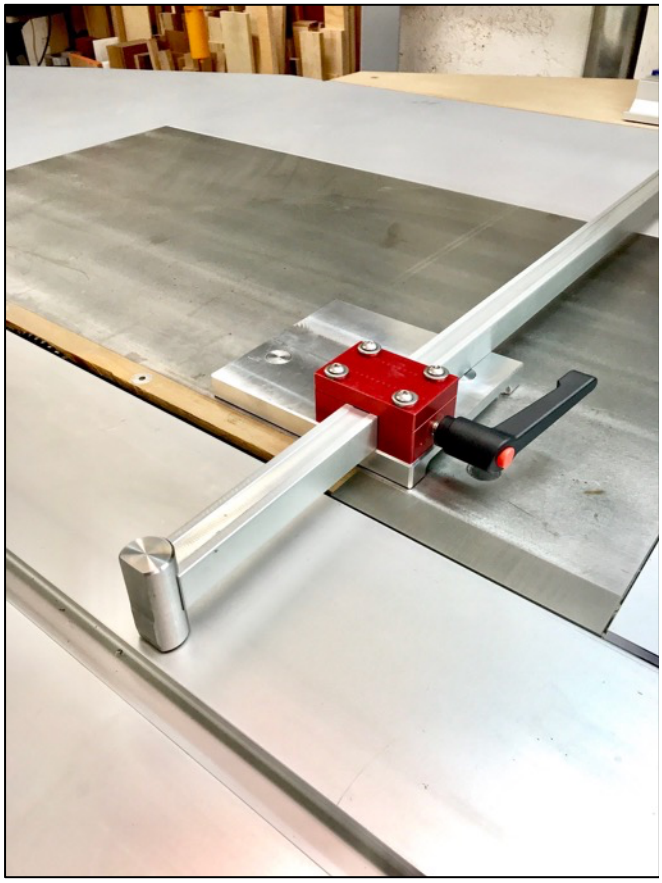
To construct this version, I simply removed the rubber handle from the Monopod and mounted it to a plywood base with two magnetic switches as shown below. The telescoping arm of this version can extend to the full width limit of the Felder parallel fence stop (43").

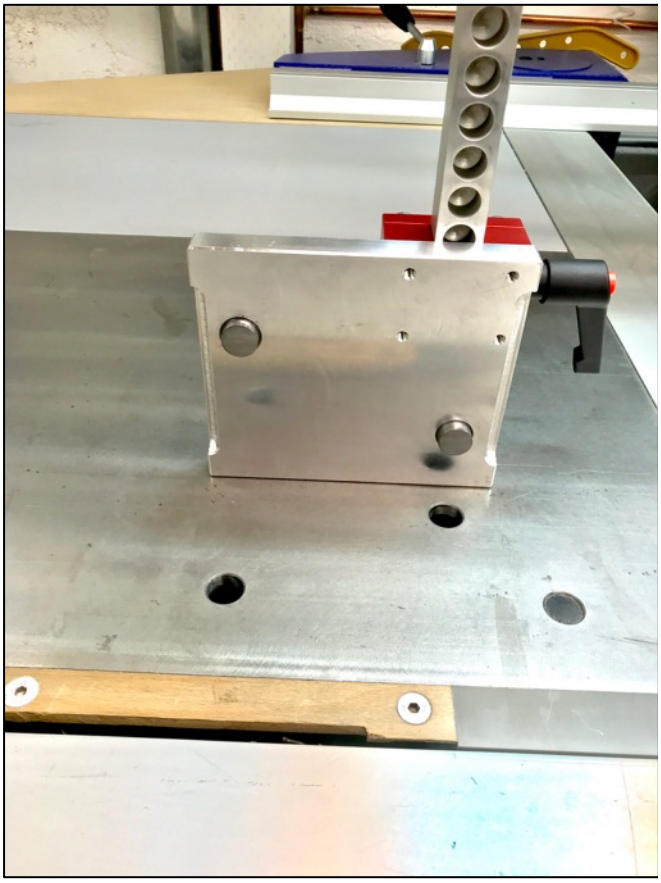
Shown below is an even simpler derivative of the same idea. This version was created by David ("Lucky") Luckensmeyer, and it consists of a hardwood batten with the same magnetic switches. It does not have a telescoping arm, but instead, a fixed-length batten that is positioned against the flip-stop on the crosscut fence and then locked down to the cast iron top of the machine with the two magnetic switches.

Once the batten is locked down with the magnetic switches, the sliding table is moved to position the parallel fence stop opposite the hardwood batten, then the parallel fence stop is moved against the end of the batten and locked in position. Then the copy device is removed for the sawing operation.

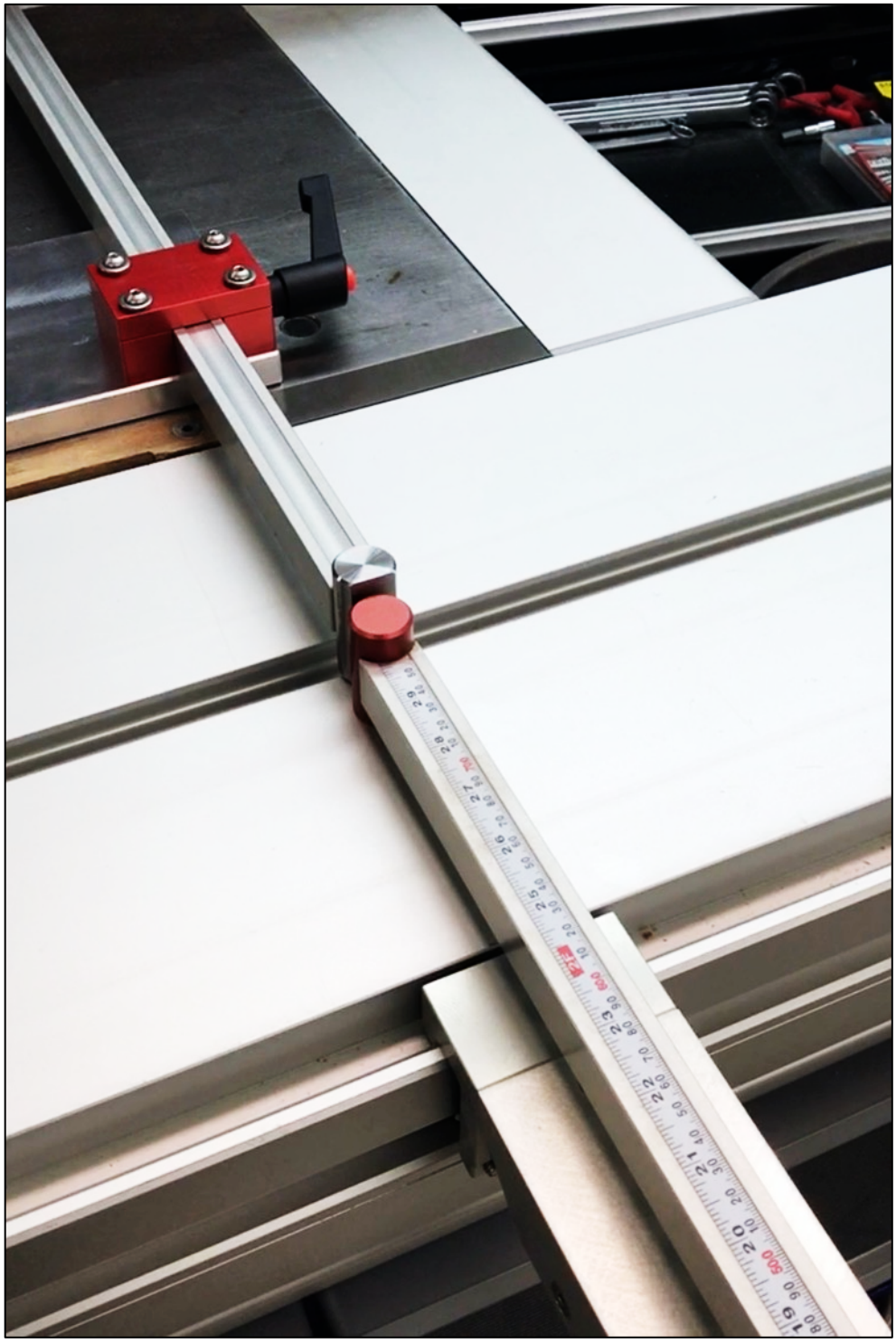


My final design for the copying device is shown below. This particular version is also telescoping, but is made of steel and aluminum and this not typically something to tackle as a DIY project unless you have the requisite machinist skills and equipment. This version simply drops onto the cast iron top of the machine, and registers into the two access holes which locks it into position.





The registration arm is then pulled out and against the crosscut stop position and locked. Then the sliding table is moved so that the parallel fence stop can be brought up against the registration arm and locked. In this way, the position of the crosscut fence stop is essentially copied to the position of the parallel fence stop.



As you can see, none of the current parallel fence alternatives are perfect. For users processing significant quantities of large and heavy panels the increased capacity of the Felder parallel fence system could be an advantage – primarily because the parallel stop can be removed leaving the extension table surface free of obstructions. For general use, the Lamb Tool Works unit, or perhaps two of them would be a better choice.

Configuring the rip fence as a parallel fence

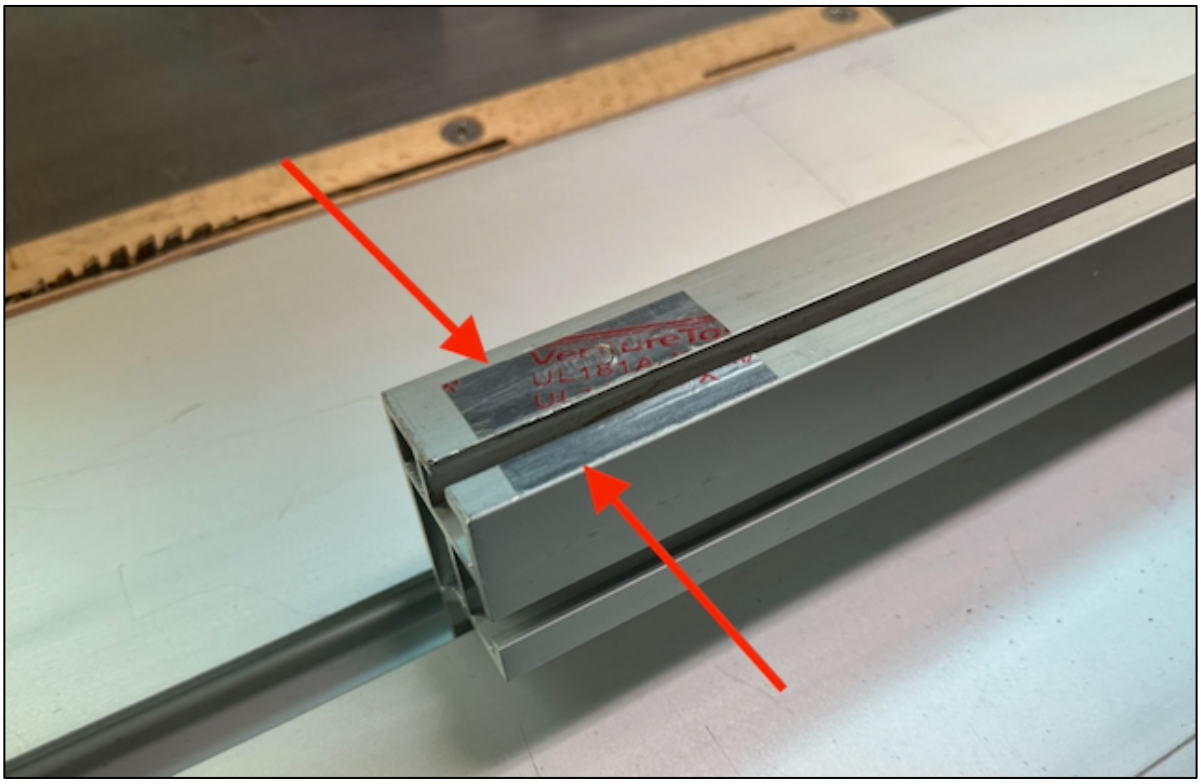
Another alternative is to set up the rip fence so that it can act as a parallel fence to the right side of the saw blade. This is particularly useful when repetitively cutting long thin strips of material (such as edgebanding). But the rip fence is not normally adjusted to be parallel to the saw blade. In fact, the rip fence is typically aligned so that it angles away from the saw blade to reduce the chance of binding and kickback when performing a ripping operation. Generally speaking, the rip fence should be aligned so that it angles away from the saw blade 0.002- 0.004" (0.1-0.2mm) over a distance of 6-8 inches (150-200mm). When the rip fence is aligned in this manner, it is no longer parallel to the saw blade or the movement of the sliding table.

Given the rip fence is aligned at a slight angle relative to the saw blade, if you push material against the rip fence, then clamp it down to the sliding table and proceed with the cutting operation, the resulting off-cut (to the right of the blade) will be tapered.

However, it is possible on most Felder sliding table saws to configure and align the rip fence in a manner that when positioned for conventional rip cuts, the fence has the proper toe-out, but when the fence extrusion is retracted and doesn't overlap the saw blade, the rip fence is parallel to the saw blade. With the rip fence parallel to the saw blade, it is possible to obtain repetitive off-cuts that are of consistent width when the material is clamped to and propelled by the sliding table. The photo below illustrates such an operation – note that the rip fence extrusion (the silver aluminum section) is retracted such that the front edge is aligned with the nose of the rip fence housing (blue) and does not overlap with the saw blade:

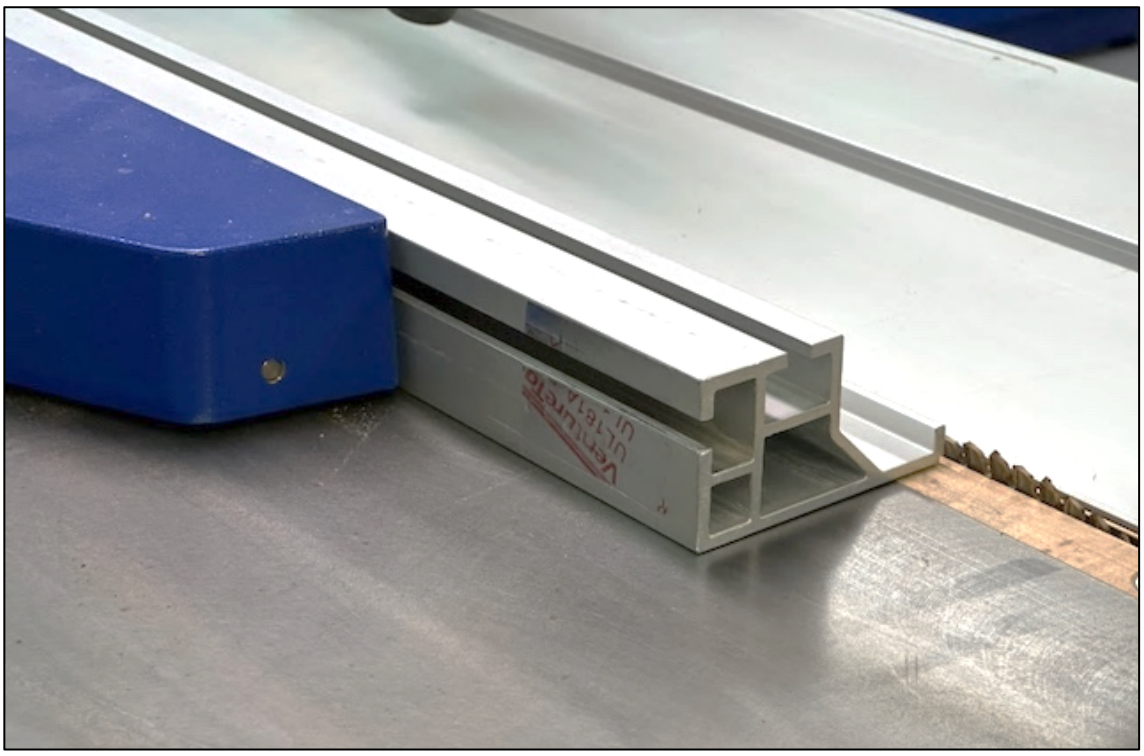
In this setup, the rip fence extrusion is configured with a small section of sealing tape at the leading edge as shown in the following photo. I prefer to use aluminum tape here for durability. This is the type of tape used in sealing up HVAC ducting joints – available at any big-box home center.

Conventional packing tape can also be used but will become chewed up over time. The ideal thickness of the tape should be 0.001-0.003” (0.02-0.04mm).

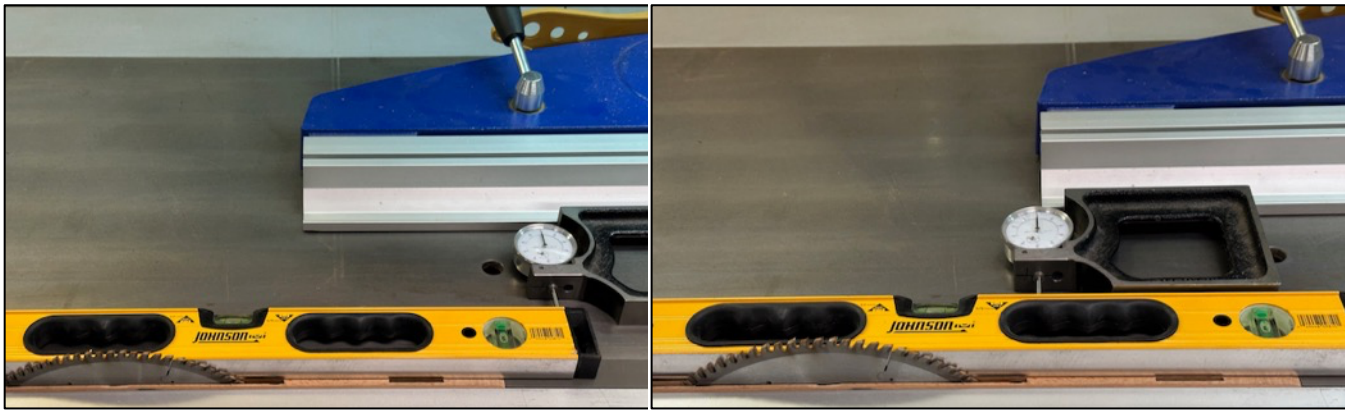


The tape is applied over a short section of the extrusion – approximately 3” (80mm) long on both sides of the t-slot as shown above, and burnished flat to the surface of the extrusion.

Once the tape is affixed to the fence extrusion, burnished down and trimmed, the tape has no influence on the angle of the rip fence when the extrusion is pushed forward. This can be seen in the following photo.

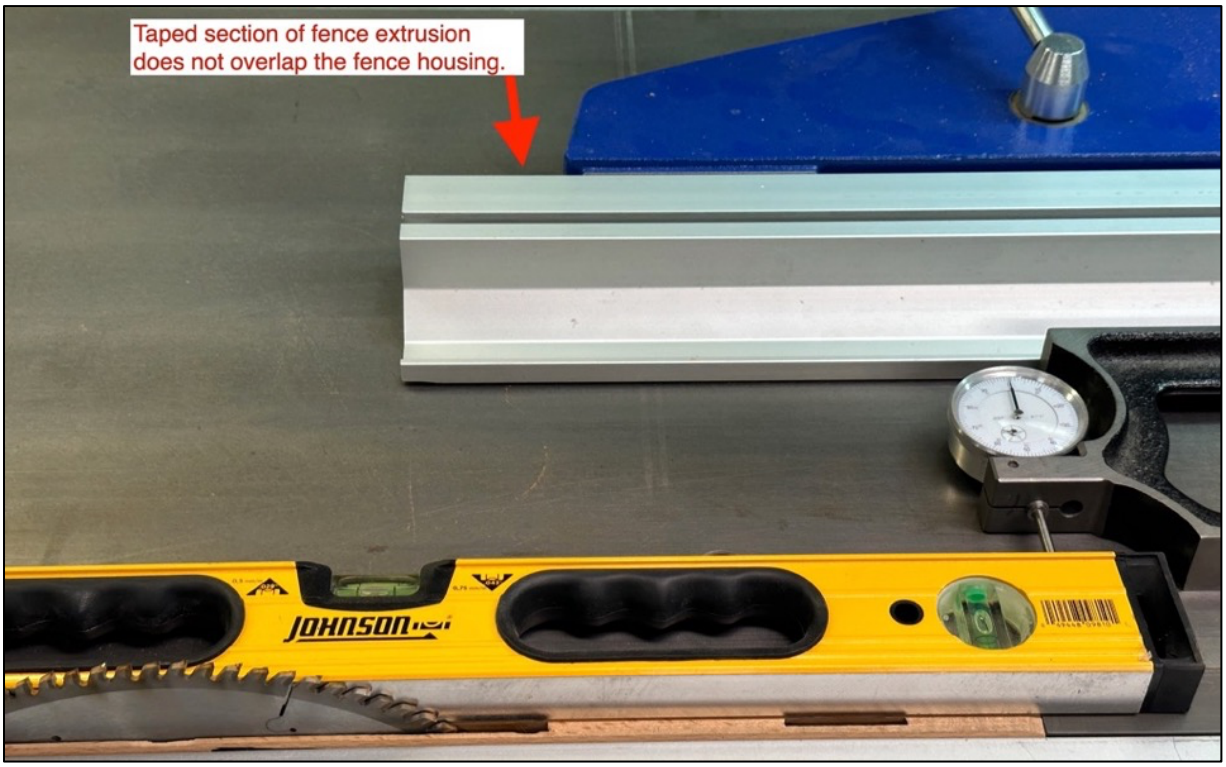


Once the tape is applied, alignment of the rip fence toe-out proceeds as follows. With the tape applied to the rip fence extrusion and the extrusion pulled back and locked in position as shown in the photo below, the rip fence is then aligned so that it is parallel to the saw blade with zero toe-out. The photo below illustrates one method of checking that the rip fence is indeed parallel with the right side of the saw blade using a high-quality contractor's level to extend the blade surface forward. Then a Oneway gauge with dial indicator is positioned between the rip fence and the contractor's level and moved forward and back along the fence to check for zero variation.

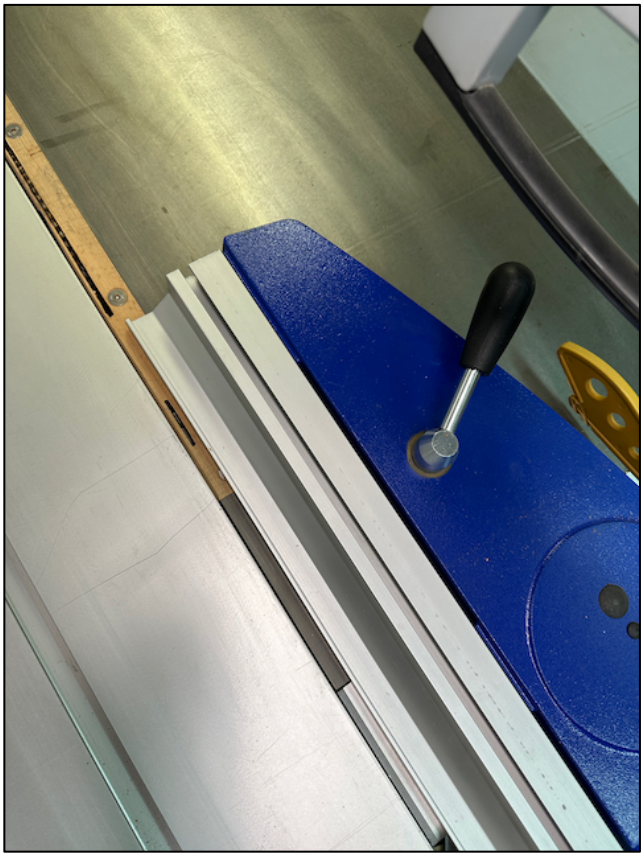


With the rip fence retracted so that the tape is sandwiched between the extrusion and the fence housing, and the toe-out adjusted to zero, this brings the rip fence extrusion parallel to the saw blade when retracted. Configured in this manner, the rip fence can act as a parallel bump stop to the right of the saw blade, and the material can be pushed against the fence and then clamped to the sliding table with assurance that the offcut will not be tapered along it's length.

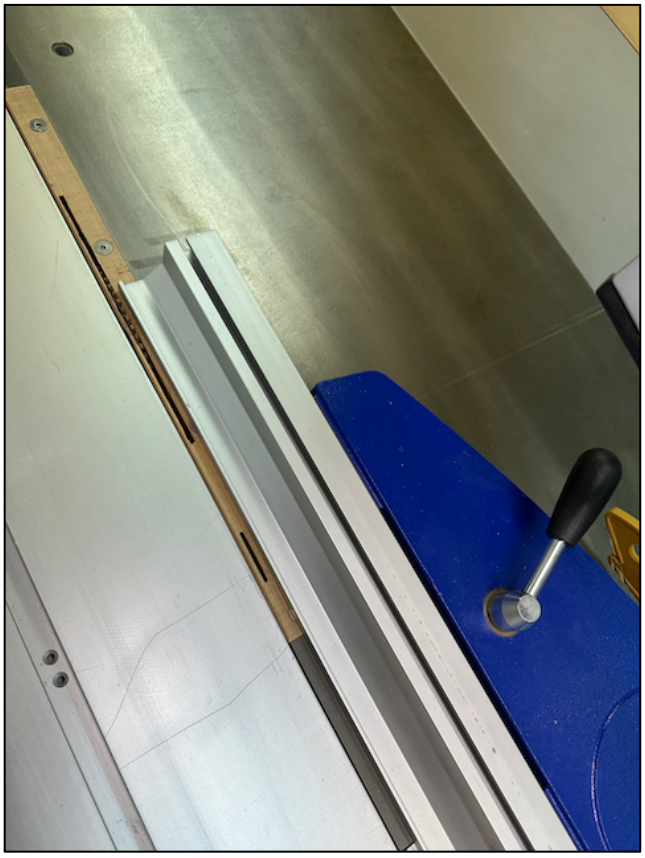
But when the rip fence extrusion is pushed forward as shown in the following photo, the rip fence now has proper toe-out and is angled very slightly away from the saw blade to reduce or eliminate kickback.



The following photos illustrate the two rip fence positions.



Rip fence is parallel to saw blade when retracted



Rip fence has proper toe-out for conventional rip cuts