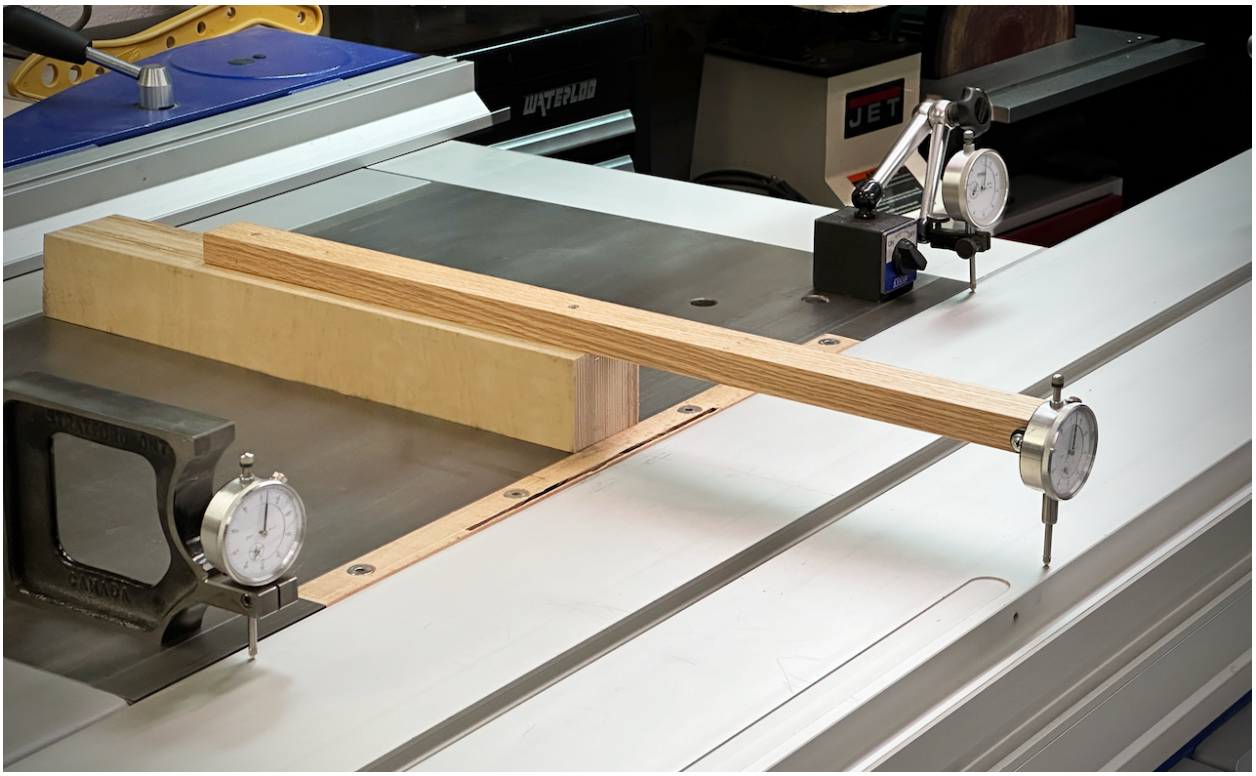
Recommended Tools to Self-Commission and Calibrate a Felder Sliding Table Saw, Shaper, or Jointer.

– one user's experience and suggestions

Users who intend to do their own installation and commissioning of Felder saws, shapers, and jointers will need certain specialized tools to accomplish the task. These are also the same tools that a user would need to check and perform their own alignments after Felder has commissioned the machine. Below is a list of the tools a woodworker may not already own, along with my preferred brand/model shown in parenthesis. The tools marked with the ★ will be necessary for longer-term use – even if you have Felder commission the machine.

- **Wrenches:** Metric combination open-end/box-end wrenches from 6 to 19 mm. plus 22mm and 32mm (32mm is used on the Jointer/Planer machines only). A set of stubby metric open-end wrenches are ideal for some adjustments inside the machine chassis (trunnion limit bolts, extension table fitments, etc.). Adjusting the sliding table height and level is best accomplished with a long version of a combination open-end/box 19mm wrench (spanner). In my opinion, the highest quality brands are from Germany, such as Gedore, Hasnet, and Stahlwille available through KCTool if you want to "buy once for a lifetime", but there are plenty of lower cost versions available through online retailers like Amazon, Granger, Travers Tool, etc.
- ★ **Hex-Keys & Bits:** You will need metric hex-wrenches (Allen keys) in 2, 2.5, 3, 4, 5, 6, 8 and 10mm (Wiha 35297). A set of conventional L-shaped keys will be necessary, and I also like the T-handled sets (Wiha 33489), as well as a set of ¼" hex-bits for use with a power drill (Wiha 79256) or handle. This is one category where it pays to spend a bit more of the German Wiha brand (search Amazon) – the less expensive versions from China simply do not maintain their hex shape over time.
- ★ **Torx Bits:** A #30 Torx Wrench is required to remove the machines from the pallets. Some smaller Torx wrench sizes are necessary for removing various sheet steel panels and plastic fascia on the machine base. My preference here is a Torx bit set used in a power drill (Wiha 79242).
- **Handle for Bits:** A universal ¼" bit handle (Wiha 77891) is also a useful hand tool for use with the above mentioned ¼" bit sets.
- **Straight Edges:** Precision straight edges in 24 and 72 inch lengths are necessary to align the sliding table and outrigger tables, as well as the tables on the Felder jointers. The best economical choice here would be the higher-end precision contractor levels. Good choices would be Stabila or Johnson brands that have machined surfaces. For 72", the Stabila 37472 would be ideal. For 24", the Johnson 5700-2400 is an excellent choice. Both are available online through Amazon and others.
- **Feeler Gages:** A set of leaf feeler gages is very handy for use in conjunction with a straight edge in checking several table alignments. A set that will measure down to .0015 inches is sufficient. I prefer the German Heyco 8140004 Feeler Gauges that are marked in both imperial and metric.
- ★ **Precision Square:** A precision machinist square with one face at least 10" (250mm) and the other 18" (500mm) is required for precise alignment of the crosscut fences. The ideal choice here would be a European flat-style L-shaped machinist square where both legs are the same thickness of 8-10mm. Most conventional precision machinist squares have a thick short base leg, and a thin longer leg, and this type is not ideal. My preference would be the Kinex 4033-02-050. Another excellent choice would be the Precision Square from Lamb Tool Works.
- ★ **Dial Indicators & Magnetic Base:** To align the sliding table, the best approach is to use plunger-type analog dial indicators on stands – two of them to reach the edge of the slider closest to the saw blade, and a third to reach the outside edge of the sliding table as shown in the photo below. The most economical approach here is to obtain a OneWay gauge which comes with an indicator and convenient for setting slider and rip fence toe-out. For the other

two dial indicators, ideal versions would be the Fowler 52-520-110-0. For the indicator base, you'll want one with articulating arms and a magnetic base such as the Noga MG10533 or an Asian clone (Neoteck 176 for instance). You will also want an indicator stand that can span the width of the sliding table. For this stand, you could either acquire the jumbo Noga MA61003, or you can make your own long reach stand as shown below. The sliding table alignment process is documented in my YouTube video on the topic.



- **Digital Calipers:** You will also need a 6" (or ideally 8") digital caliper. This is one place where it pays to invest in a high-quality instrument such as the Mitutoyo brand. You can get by with cheaper brands, but they eat batteries and are less refined than the Mitutoyo units. My first choice would be the Mitutoyo 500-197-30 eight-inch version, or Mitutoyo 500-196-30 six-inch as an alternative. Watch out for counterfeit Mitutoyo digital calipers – buy from a reputable supplier such as msi-viking.com, zoro.com, grainger.com, MSCDirect.com, etc. rather than through Amazon or on eBay where counterfeit copies abound.
- **Machinist Precision Level:** An optional but very useful tool to set up the machine is a precision machinist level. This is particularly helpful in getting the cast iron top of the saw/shaper as flat as possible, and for checking that the jointer tables are coplaner to each other. It can also come in handy when leveling the sliding table. For this tool, you will want a level that can detect height differences of 0.001" (one one-thousandth of an inch or 0.02mm) over 10" in length, and at least 10" long. The Accusize Industrial Tools S908-C687 12'' Master Precision Level and the of the more economical choices here, as is the Dasqua 8302-0020 Master Precision Level, and Lamb Tool Works makes an excellent Precision Level that is 16" long with the necessary resolution and accuracy.

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