

# Akeda Versus Leigh Dovetail System

## The Dovetail King

There are numerous dovetail jigs on the market today in a wide array of price ranges and capabilities. One of the most widely known is the Leigh dovetail jig which has been regarded by many as the "king of the hill" among dovetail jigs. Irregardless of whether or not the Leigh actually is the true king, a usurper has recently laid claim to that throne - the Akeda dovetail jig (also known as the Trend DC400 dovetail center).

## Comparisons

Because the Akeda was expressly designed to compete in the Leigh market niche and it is a template based system, there will be numerous similarities between the systems; there are also several important differences. Listed below are the major areas of comparison.

### Guiding

Akeda	Leigh
<p>The Akeda uses a guide bushing that rides against a series of movable plastic fingers. The router rests on the top of the jig base, not the plastic fingers.</p> <p>Another aspect relating to guiding is support. Because the router is more fully supported by an unchanging plane, control seems to be greater when compared to the Leigh.</p> <p>The more confined nature of the enclosed design also presents a problem, care must be taken in use so as not to rout into unwanted areas.</p>	<p>The Leigh uses a guide bushing that rides against a series of metal finger pairs. These fingers also serve to support the router itself.</p> <p>Because the router base is resting on the template and the template fingers are wide open on one end, one may experience a certain "tippy" feeling on the entry side of the stock. I've never attributed any actual problem to this however.</p>

### Template

Akeda	Leigh
<p>The fingers for the Akeda are separate, loose, and independent for both tails and pins and the TD pins are unique for the different dovetail angles as well. They are snapped into place and mesh into positioning teeth inside the jig base in increments of 1/8" meaning all the stock should be constrained to multiples of 1/8" in width as well.</p>	<p>The fingers used by the Leigh are held in place by a guide bar and are infinitely adjustable; they are locked into position by tightening a screw.</p> <p>The same fingers are used for both through and half blind dovetails although the cutter angles are different. This is accomplished by a multi-profile finger design that comes into play depending on which side of the fingers are used. The template assembly indicates which mode (through / half blind) the user is in.</p>

### Layout

Akeda	Leigh
<p>To layout joint positions one snaps in the individual fingers as desired. Because different fingers are used for pins and tails the position of each finger must be recorded in order to place the opposing set correctly.</p> <p>The Akeda claims "variable spacing" but the position of the fingers can be made in only 1/8" increments. The overall width of each pin is not truly variable but it can be moved from one spot then another and re-routed. This is such a cumbersome (prone to error) method that it makes any claim to true variability in width quite suspect.</p>	<p>To layout joint positions one moves the finger pairs along the rail in whatever position and finger width desired then locking them in place using the screw inside each finger.</p> <p>Because the Leigh allows for true infinite positioning and the layout can be changed with such ease I find that it makes for a much quicker and more intuitive process.</p>

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## Accuracy

The accuracy of a template based dovetail jig is controlled by several factors, the guide (of some form), the template position relative to other parts of the jig, the shape of the fingers, the cutters, how well the stock is held, and even the ergonomics of controlling the router in use.

Akeda	Leigh
<p>The fingers on the Akeda are constrained to 1/8" increments. This ultimately translates the jig into the "digital domain" insofar as positioning accuracy.</p> <p>There is very little aside from the "adjustment" issues listed below that could throw off the accuracy of the jig.</p>	<p>Aside from the greater repeatability for the Akeda, there is in truth very little meaningful difference regarding accuracy between these jigs. Any misalignment error made when using the jig should be attributed to "operator error".</p> <p>Aside from the "digital" constraint of the Akeda, neither system has any clear advantage over the other so as to predispose the operator away from making a gross error; ie: nothing is idiot proof nor are either of these jigs "idiot friendly".</p>

## Adjustment

ALL dovetails jigs require some form of adjustment for joint fit to be performed, some more so than others. The more capability a jig has, the more adjustments must be made to cover that increase in capability. The types of adjustments that need to be made are basically the same for all template based jigs. There are however different methods used to make these adjustments.

Akeda	Leigh
<p>The Akeda has been specifically designed to offer no adjustment to the template system itself. However its claims of "no adjustment required" is fundamentally not true. There are in fact adjustments required.</p> <p>All the fixed template design does is move the fit equation from the template and into the guide bushing and bit diameter. This ultimately translates into fewer opportunities to correct the fit since it is harder to make corrections changing bit and guide bushings than it is to move a template. The design of the Akeda in particular is closely dependant upon the guide bushing being nearly perfect; Standard guide bushings are NOT purposefully made to the tolerances required.</p> <p>Since the template is fixed, adjustments are made using two additional proprietary router bits (the straight cutters) which are 0.004" under and oversize and / or using two 0.004" under and oversize precision guide bushings.</p> <p>As a result of this design, if the tolerance stackup of the guide diameter, router bit diameter, and spindle runout does not result in the desired fit, the user must start swapping router bits and guide bushings to try and find the right combination to achieve the desired fit. This is more of a hassle than simple reading a scale and moving the template.</p> <p>It should be noted that the over and under size router bits and guide bushings required to obtain adjustability are NOT standard therefore the base jig actually has NO adjustment capability.</p>	<p>There is a scale at either end of the Leigh finger assembly that is set according to the diameter of the bit. This system is geometrically predisposed to offering the user very fine control of the joint fit.</p> <p>This also allows the user to account for any guide bushing size variances with ease. Using the scale, a user is actually able to compensate for the smallest of fit variations including those related to the compressibility of different species of wood fiber.</p>

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## Capability

Both jigs have the ability to cut Through and Half Blind dovetails. They also have the capability to cut other joints such as box joints and sliding dovetails. Both jigs are basically a "replaceable template" system. What this means is that the base is really just a clamp and template holder. Because the Leigh has been around much longer there are several templates available for it including Mortise and Tenon, adjustable box joints, as well as a few oddball templates like the Isoloc. Supposedly Akeda will be offering additional guides to make other joint profiles as well, it remains to be seen what they are, when they may become available, and at what cost.

Aside from template selection, stock thickness and width, both jigs should be considered to have basically equal capabilities. One could argue some additional capability claims made by either system but at the end of the day they are truly minor differences in capability aside from those I've mentioned specifically.

## Capacity

Akeda	Leigh
<p>The maximum joint width is 16". This is fine for most boxes the size of drawers but a few inches shy of being able to handle casework such as blanket chests.</p> <p>This isn't a complete show stopper since pieces can be joined later to form larger boards. It does however present another opportunity for error using a joint that is very intolerant of error.</p> <p>The maximum dovetail depth is 3/4" for through dovetails.</p>	<p>The maximum joint width is 24". Not only does this put Leigh into the realm of being able to handle casework, it covers any reasonable need when setting up to cut asymmetrical layouts of drawer sized boxes.</p> <p>The maximum dovetail depth is 1 1/4" for through dovetails.</p>

## Dust Collection

Akeda	Leigh
<p>Being an enclosed design means the Akeda will naturally prevent chips from being thrown at the user. The dust collection accessory makes the Akeda much cleaner both in term of chips and ergonomics. I highly recommend the dust collection hood.</p>	<p>The Leigh offers no dust collection capability of it's own. Leigh does offer a dust collection hood that can be fitted to the router and this does take care of most of the dust but it makes the router more cumbersome to handle.</p> <p><i>The Leigh hood can also be used on other jigs and for edge routing freehand.</i></p>

## Cost

Akeda	Leigh
<p>The base cost of the Akeda is about \$330. Since there is no adjustment possible with this configuration, the under and over size router bits (\$18 each) should be purchased along with the sliding dovetail device, this brings the cost to a realistic comparison sum of \$366. I would also recommend the dust collection accessory for an additional \$30.</p> <p>A fully loaded dovetail cutting system comparable to the Leigh would run over \$500.</p>	<p>The base cost of the Leigh is about \$360. A fully loaded (dovetail) cost would depend upon which (of the several to choose from) router bits were desired (I get by with only 5 more); a reasonable estimate would be about \$460.</p> <p>Note that both jigs will also need router guide bushings although you might have to go through a few to get the perfect ones required of the Akeda.</p> <p><i>In contrast to the Akeda I do not universally recommend the Leigh dust collector although it does work.</i></p>

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## Cutters

Akeda	Leigh
The Akeda requires a special set of dovetail and straight cutters. As of this writing, these cutters are just becoming available through a third party maker (Whiteside).	The Leigh also requires a special set cutters. They are widely available from many manufactures and vendors. Many of the cutters for the Leigh are also available in 8mm shanks which offer an improvement over the 1/4" shank sets.

## Documentation

Akeda	Leigh
While adequate, the Akeda manual falls short of the very high standard set by Leigh. It is even a little sparse in some respects.	The documentation for the Leigh is exceptional, I have simply never seen anything better. It clearly describes and illustrates every single step involved in assembly, setting, and using the jig.

## Summary

There are a few areas where one system has a clear technical advantage:

Advantage Akeda:

- Dust collection.
- Router support, no feeling of tip near the edge.
- "Digital" repeatability

Advantage Leigh:

- True variable layout in both position and pin width.
- Adjustment for fit is finer and much easier to control.
- Documentation, a manual of exceptional quality.
- Capacity, an additional 8 inches more in width and 1/2" in thickness.
- Cutters, widely available and more to select from.
- Additional joint profiles, (important only if you plan on using other types of joints).

I've tried to show the similarities and differences between these two competing systems on a purely technical basis. As such, this comparison does not make any considerations for personal preferences. It would be of benefit for a perspective buyer to see a demo and try both jigs. The goal would be to come away with the jig that best suits your own needs.