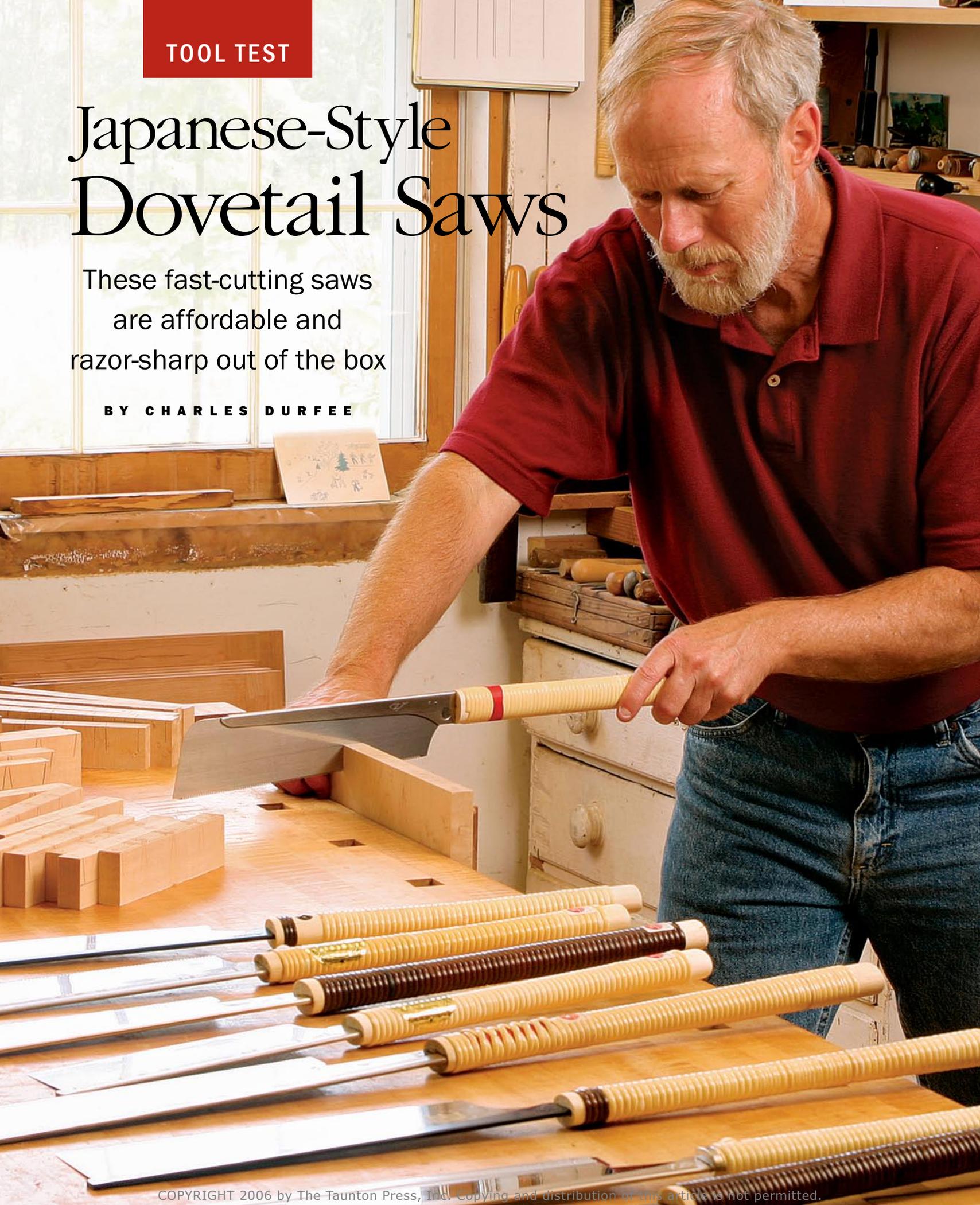


TOOL TEST

# Japanese-Style Dovetail Saws

These fast-cutting saws  
are affordable and  
razor-sharp out of the box

BY CHARLES DURFEE



**M**y first woodworking years were spent building traditional wooden boats with a small group of similarly wide-eyed enthusiasts. We would gather around the woodstove to warm our fingers, and invariably would talk about tools. Our handsaws were the typical carpenter's variety: crosscut and rip, with an occasional backsaw. Sharpened as best we could, they cut pine and cedar adequately, struggled in oak and mahogany, and in general made sawing by hand an unwelcome chore.

Then one day a shop-mate came in holding a carefully wrapped, slender package. He pulled out a strange-looking saw with a thin blade and a long, straight handle. He explained that the blade was so thin because this type of saw cuts on the pull stroke, an action that keeps the thin blade from buckling. The narrow blade naturally creates a thin kerf or cut, which means it requires less effort to remove less wood, and it cuts faster.

We tried the saw. It was like touching the pedal of a Jaguar after driving a Ford all your life. The saw raced through the cut, straight down the line. It was my first exposure to Japanese handsaws, and I've been a fan ever since.

Although I've now used Japanese saws for 30 years, I've never really studied them other than to read catalog descriptions or the occasional article. When I needed a new one, I looked through tool catalogs and tried to figure out the differences among the many offered. Other than price, they seemed very similar in appearance and description, so the chance to test and evaluate a range of these saws was a fine opportunity to learn more.

### Quick tour of a Japanese saw

Like their Western counterparts, Japanese saws come in a range of styles depending on the type of cut to be made and whether speed or smoothness is more important. The type of saw I tested is known as a dozuki, which means "tenon shoulder" in Japanese. The standard dozuki is a crosscut saw, but rip dozukis are finding their way into the market and examples are included in this review.

A dozuki has a very thin blade—generally 11 to 12 thousandths of an inch, or half the thickness of a Western sawblade—supported by a back of folded-over steel or



## Pullsaws have different tooth styles

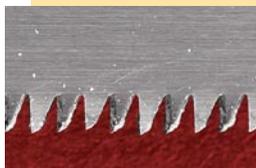
**A closer look.** The teeth on Japanese saws are small, yet they have a number of differences in design and performance.

### CHOOSE WISELY

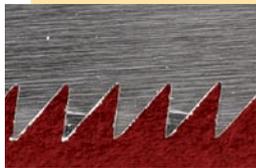
There are four types of tooth pattern on the saws that I looked at, two crosscut and two rip variations. While dovetail cuts are ripping cuts, you might want a saw that also crosscuts cleanly.



**CROSSCUT** This pattern is typical on dozukis. The teeth are long and narrow, sharpened at an angle to the blade. These make very good crosscuts and rip cuts, though they rip more slowly than saws with a true rip pattern.



**IKEDA CROSSCUT** In the Ikeda tooth pattern, a set of normal crosscut teeth is followed by two raker teeth, which have less set and are slightly lower in height. The goal is to clean out the chips more efficiently, but the ones I tested had a rougher action than the conventional crosscut pattern.



**RIP** Ripsaws have teeth shaped very similar to Western-style saws, although with thin blades and the pull-stroke action, of course. These saws make the fastest dovetail cuts, but I wouldn't ask them to do any crosscutting.



**MODIFIED RIP** Modified rip teeth look similar to crosscut teeth in profile, with the secondary bevel. However, they are sharpened as rip teeth, that is to say, straight across the blade. They rip very decently and can crosscut in a pinch, although with a rather rough action.

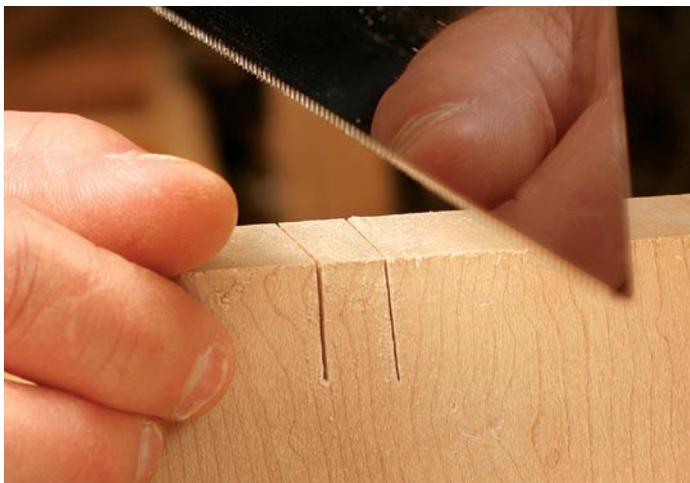


**Ripping speed.** To test how fast each saw could rip, Durfee cut dovetails in 3/4-in.-thick cherry, and in soft and hard maple (left). The number of strokes it took to make each cut was recorded and then averaged to give each saw's score (above).



## THINNER BLADES CUT FASTER WITH LESS EFFORT

*The number of strokes to make each cut was recorded, and the kerf width cut by each saw was measured with feeler gauges (above). The thickness of the sawkerfs ranged from 20 to 10 thousandths of an inch (right).*



brass. The straight oval handle is wrapped with rattan.

The number of teeth per inch (tpi) on the finer dozukis is usually in the 24 to 28 tpi range, compared to 15 to 20 tpi on the average Western dovetail saw. The dozuki crosscut teeth are long and thin, with a distinctive secondary bevel at the tip. The blade length is usually 9 in. to 10 in., but a couple of the saws I looked at have 7-in. blades.

The final difference relates to sharpening and resharpening. Basically, a Western-style saw dulls a bit more quickly, but can be resharpened with specialized tools and some experience. On the other hand, most Japanese saws arrive with razor-sharp, hardened teeth that stay sharp longer, and the blade simply is replaced when it dulls, usually at a cost of \$20 to \$30. My saws usually last as long as 10 years under frequent use in a professional shop. Higher-end saws

have blades that can be resharpened, but that costs about \$30 and the saw must be returned to Japan, so you'd be without it for three to four months.

## The saws were tested for ease of use, speed, and smoothness

For this test, I chose 15 saws. I selected crosscut dozukis with 18 to 30 tpi, intended for very fine cuts. I also chose some rip dozukis, which, like Western saws, have fewer teeth per inch. Two of the rip saws had tooth patterns similar to those of Western saws, while a couple of others had a modified rip sharpened at 90° to the blade, but with secondary bevels (see "Choose wisely," p. 81).

Unlike many Western-style saws, every dozuki arrived very sharp and ready to cut. I used each saw to cut a series of dovetails in ¾-in.-thick cherry, soft maple, and hard, bird's-eye maple to a depth of ¾ in. To measure the speed of each saw, I counted the number of strokes needed to get to the final depth. I also noted how well the saw set in when starting the cut, especially when making the angled, tail cuts. The smoothness of the stroke, the ability to correct the cut, and the smoothness of the side walls were also observed.

As a group, the saws set in well, and their sharpness was very helpful when getting



## REPLACEABLE BLADES ELIMINATE SHARPENING

*Most of the saws tested come with hardened teeth that cannot be sharpened. When they eventually become blunt, or if the blade is damaged, the blade is removed from the back and handle and replaced.*

# Helpful hints for using a pullsaw

IT TAKES TIME TO BECOME COMFORTABLE with the pull-stroke action, but any new tool takes some getting used to. Because of the thinness of the saw, use a light touch in general, but especially on the forward stroke, to avoid buckling the blade.

When gripping the saw, I prefer to hold the handle near the end with all four fingers wrapped around it. Alternatively, you can grip the front of the handle, with or without the index finger pointing along the top.

Start a cut on the rear corner of the workpiece using the heel of the blade. Angle the blade very slightly and pull back gently, applying very light pressure; the sharp teeth are designed to

do all the work. Once the cut is on track in the back, come across the top to establish the kerf before working down the front line. In this way you won't have to deal with following two lines at once.

Because the teeth have so little set (a sideways bend to the tooth, to avoid the blade binding in the cut), it is difficult to correct a cut that's not straight from the start. It's best to back out and restart the cut instead of trying to twist the blade in the kerf. If you've been used to a Western-style saw, you will notice the fine dust, the thin kerf, the speed, and (with a few exceptions) the very smooth action of the dozuki.

## THREE WAYS TO HOLD THE SAW

**End of the handle.** Durfee prefers to hold the saw near the end of the handle for a light touch.



**Finger pointing.** An alternative is to extend the index finger along the length of the handle to help direct the saw.



**Tuck the handle in.** Some users prefer to hold the handle close to the blade and keep the end of the handle close to their side to help guide the saw.



## STARTING A CUT

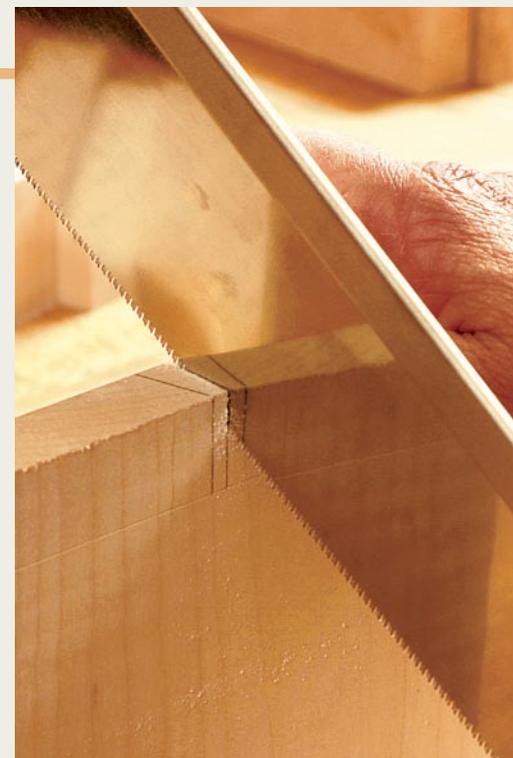
Guide the cut with your thumb. Angle the saw very slightly and start cutting at the back corner. Use only very light cuts and let the teeth do the work.



## CORRECTING A CUT



If you find that the cut has drifted off course, don't try to correct it by tilting the saw; the thin blade will bend (top). Instead, back the blade out and start again at a steep angle until you are back on the right line.



## CHOOSING A DOVETAIL SAW

If you only want to cut dovetails, then buy a rip saw such as the Gyokucho 9½ in. or the Deluxe rip dozuki. For both ripping and crosscutting, the Dozuki “Z” crosscut saw is the best buy.



SAW NAME	RETAILER (TOOL NUMBER)	STREET PRICE
<b>CROSSCUT (ALL-PURPOSE) SAWS</b>		
8½-in. dovetail saw	Japan Woodworker (18.210.0)	\$42
Craftsman dozuki	Garrett Wade (49117.01) Lee Valley (60 T 03.15)	\$50 \$50
Deluxe dozuki	Tools for Working Wood (MS-JS320)	\$90
Deluxe dozuki with replaceable blade	Tools for Working Wood (MS-JS445) Japan Woodworker (19.210.0)	\$40 \$51
<b>AUTHOR'S CHOICE</b> <b>BEST OVERALL</b> <b>BEST VALUE</b> Dozuki “Z” saw	Rockler (65607) Woodcraft Supply (12F27)	\$43 \$42
Hardwood dozuki	Garrett Wade (49115.01)	\$50
Ikedame dozuki	Highland Woodworking (056406)	\$50
Juntaro Mitsukawa	Tools for Working Wood (MS-JS420)	\$270
Odate crosscut dovetail	Highland Woodworking (056423)	\$50
Standard dozuki	Lee Valley (60 T 03.01)	\$45
Takumi dozuki	Woodcraft Supply (142421)	\$55
<b>RIPSAWS</b>		
<b>AUTHOR'S CHOICE</b> Deluxe rip dozuki	Tools for Working Wood (MS-JS340)	\$90
Dozuki rip saw Izaemon	Japan Woodworker (05.114.24)	\$147
<b>AUTHOR'S CHOICE</b> <b>BEST VALUE</b> Gyokucho 9½ in.	Japan Woodworker (19.311.0)	\$39
Odate rip dovetail	Tools for Working Wood (MS-JS340.01)	\$48

a cut started. All cut straight down a line with minimal guidance, which indicates a good job of sharpening and setting.

A key component of performance is speed: You may be willing to take the time for hand dovetailing, but you don't want to spend all weekend at it. It was in this category that the rip saws separated themselves from the pack. I was startled, to say the least, by how fast the two true rip saws flew through the cuts. Thirteen strokes to get through ¾-in. by ¾-in. cherry is pretty remarkable, especially when compared to the 30 to 40 strokes it took some of the crosscut saws.

All the saws tested had a lovely, smooth action, with only subtle differences between them. The expensive, handmade

Juntaro Mitsukawa is an exceptionally smooth cutter, although probably to a degree that would interest only the true connoisseur. For most users, a saw that costs one-fifth as much will do nicely. On the other hand, I found the Ikeda tooth-pattern saws to have a generally rougher action than the standard crosscut saws.

I also examined the quality of the cut. All the saws left smooth side walls that would be fine as is for joinery. The stand-out was the fine-toothed 8½-in. dovetail saw, which left a remarkable, glass-smooth surface.

As a group, these saws reward accurate starts and don't appreciate being used to try and correct a misaligned cut (see “Helpful hints for using a pullsaw,” p. 83).

TOOTH TYPE	TEETH PER INCH	BLADE THICKNESS (INCHES)	KERF WIDTH (INCHES)	REPLACE OR SHARPEN	RIP SPEED TEST RESULTS (AVERAGE STROKES PER CUT)			CROSSCUT RATING	COMMENTS
					Cherry	Soft maple	Hard maple		
Crosscut	30	0.008	0.010	Replace	21	35	64	A	Short blade
Ikeda crosscut	24	0.012	0.016	Replace	26	42	48	C	Brass back
Crosscut	26	0.011	0.014	Sharpen	26	46	60	A+	Very little set, so not a beginner's saw.
Crosscut	26	0.011	0.017	Replace	26	55	70	B	Decent basic dozuki
Crosscut	25	0.012	0.015	Replace	18	31	55	A	The best of the basic dozukis
Crosscut	25	0.011	0.015	Replace	32	44	75	B	Unusually wide 3-in. blade; nicely finished
Ikeda crosscut	18	0.012	0.020	Replace	29	40	68	B	Same maker as Dozuki "Z" saw but with fewer tpi
Crosscut	26	0.012	0.015	Sharpen	18	34	70	A	Longest blade and handle of saws tested
Crosscut	23	0.011	0.016	Replace	40	46	60	B	Rough stroke; slow due to short blade; cloth blade cover
Crosscut	18	0.011	0.017	Replace	30	43	74	B	Fewer tpi than most crosscut saws
Crosscut	26	0.009	0.013	Replace	20	33	60	A	Enameled back and long blade
					Cherry	Soft maple	Hard maple		Comments
Rip	13	0.011	0.013	Sharpen	13	16	13	n/a	Same maker as Deluxe dozuki crosscut saw
Rip	9-14	0.012	0.013	Sharpen	13	16	13	n/a	More tpi toward the heel for starting cuts
Modified rip	20	0.011	0.016	Replace	19	23	22	n/a	Did extremely well at an affordable price
Modified rip	20	0.011	0.016	Replace	16	23	22	n/a	Short 7-in. blade; cloth cover

When using saws with a minimal set of about 2 to 3 thousandths of an inch (generally the higher-end saws), the only way to correct a cut is to bring the blade back to the top of the kerf and rework it. Those saws with a set of at least 5 thousandths of an inch afford some ability to correct a cut in progress, but less than most Western-style saws.

### Choose your saw based on the cuts you'll make

Your choice of dozuki should depend on what you want to use it for, your skill level, and your willingness to invest. Sawing dovetails consists of a rip cut. Even cutting the tails (while on a slight bias) primarily is ripping with the grain. A saw dedicated

to dovetails calls for a rip-tooth pattern, but while rip-saws cut dovetails well, they are quite rough when used for crosscuts. A crosscut saw, on the other hand, crosscuts beautifully and also rips smoothly, although more slowly. Thus a good-quality saw with a crosscut or a modified rip-tooth pattern may be your best choice if you are buying just one pullsaw.

Within the dovetail-only group, the rip dozukis clearly have the performance edge. Tools for Working Wood's Deluxe rip dozuki saw and Japan Woodworker's dozuki rip-saw Izaemon both performed superbly. However, because it is substantially less expensive, the Tools for Working Wood saw is my choice as the best overall.

For best value, I chose the Japan Woodworker Gyokucho 9½-in. dovetail saw. It does quite well making the dovetail cuts with its modified rip-tooth grind, it has a replaceable blade, and it's very modestly priced.

If you are looking for an all-purpose dozuki, I recommend as best overall the "Z" saw, offered by both Rockler and Woodcraft Supply. Being a crosscut saw, it does that very nicely, but it also can rip adequately. Despite the superior performance, the price is about the same as many others tested, so the "Z" dozuki is my choice for best value as well.

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