TOOL TEST

Midi-lathes

This new breed of small lathe offers several features found in bigger machines at a more affordable price

BY ANDY BARNUM

A lathe can make most good shops even better. A woodworker can add considerable appeal to a furniture piece (depending on the style) by including turned parts, such as legs, knobs, spindles and pedestals. Other turned items, such as bowls, plates and boxes, stand fully on their own merits.

Many woodworking shops, however, don't have a lathe—most likely because of cost or space. Lathes require cash, something many of us don't have in surplus. And lathes take up a lot of space, something most shops have little of, if any, to spare.

But the arrival of a new category of small lathes has made cost

Meet the testers

Students and instructors from the School of Art and Design at Purchase College tested five midi-lathes for a semester, giving each of the lathes a serious workout. In the process, the students created dozens of turnings.

Photos, except where noted: Michael Pekovich

DELTA 46-250

The Delta weighs less than the average lathe in this group, making it easier to lift and move. It has an on/off switch that is conveniently located above the headstock. The tailstock handwheel turns comfortably.

Telephone: (800) 438-2486

Street price: $300 ($50 for bed extension)

Weight: 65 lbs.

Motor: ½ hp, 6.6 amps

Swing: 10 in.

Distance between centers: 14½ in. (37 in. with extension)

Speed settings (rpm): 500, 800, 1,250, 1,800, 2,650, 3,700

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 1½ in. travel

Faceplate included: Yes

Outboard turning option: No

and space less of an issue. Introduced in the late 1990s, these machines—often called midi-lathes—are generally bigger and beefier than the so-called minilathes, yet they're smaller than full-sized machines. Midis are affordable—selling for between $285 and $350—and take up very little space. Plus, when not in use, most can be picked up and stored out of the way, although a couple of the heavier models might best be moved by someone who spends regular hours at a gym.

Midi-lathes have other features that appeal to me. Unlike minilathes, the midis include some qualities normally found only on bigger machines, such as ½-hp motors and spindles with 1-in. by 8-tpi threads and #2 Morse tapers. Also, when used with an optional bed extension, a midi can turn long spindles between centers.

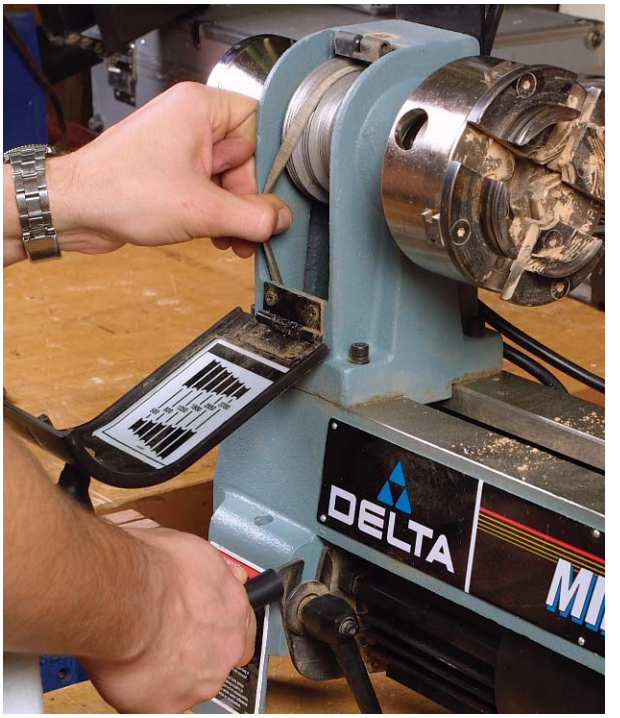
For someone unsure whether wood turning is going to be worthwhile, a midi-lathe just might be the best way to test the waters. Not only are the midis relatively inexpensive, but they also have enough power to do some serious work. And as your turning skills grow, you can grow the lathe by adding a bed extension.

So midi-lathes have a lot going for them. But how well do they work?

Students give the test

I teach wood turning at the School of Art and Design at Purchase College in New York. The shop has 10 full-sized lathes. But the class, part of a furniture-design program, often attracts as many as 15 students. With an obvious need for more lathes, I arranged to borrow the five midi-lathes currently on the market—the Delta 46-250, the Fisch TC 90-100, the General 25-100 M1, the Jet JML-1014 and the Nova Mercury—to find out how well they could hold up to the wear and tear of regular use. By the way, the Nova Mercury is marketed as a minilathe, even though it has a ½-hp motor, 1-in. spindles, #2 Morse tapers and an expandable bed, all features found on the other midis. So I felt comfortable including it in the midi-lathe group.

To find out how the midis would hold up under daily use, each



Two ways to change speeds. *To make any speed change on the Delta, Fisch, General or Jet, the belt (left) is repositioned on stepped pulleys. Changing speeds on the Nova (right) is mostly just a matter of turning a dial.*

Photo, this page (top): Tom Begnal

FISCH TC 90-100

At 81 lbs., the Fisch weighs slightly more than the average midi-lathe weight of 74 lbs. It has the lowest price of the bunch. And, at 15 in., it ties for the most distance between centers without a bed extension. The on/off switch is conveniently located in the headstock.

Telephone: (724) 663-9072

Street price: $285 ($60 for bed extension)

Weight: 81 lbs.

Motor: ½ hp, 6.6 amps

Swing: 10 in.

Distance between centers: 15 in. (39 in. with extension)

Speed settings (rpm): 500, 800, 1,250, 1,800, 2,650, 3,700

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 2½ in. travel

Faceplate included: Yes

Outboard turning option: No

one was put to work in my once-a-week, all-day class for an entire semester. As the semester progressed, the student testers provided plenty of candid feedback on the strengths and weaknesses of each machine. Here's what we found.

Power isn't a problem

Anyone taking a quick look at these small lathes might be tempted to dismiss them as less-than-serious machines. So right off the bat we wanted to know if they have enough power. And within a few weeks, after turning an assortment of bowls, plates and spindles, the students concluded that they do. The ½-hp motors, a size that's often standard on larger (12-in.) lathes, provided all the muscle we needed.

Dial-a-speed is simpler

Lathes are designed to run at several speeds to accommodate different sized workpieces. Large, heavy workpieces require a slow speed, while small, light parts can be spun considerably faster. So it's helpful to be able to change speeds without a lot of annoyance.

The Nova stands out from the others in this regard. Thanks to a d.c. motor, a three-step pulley and variable-speed control, the Nova has an overall speed range of 140 rpm to 5,350 rpm. Depending on the pulley location, the lathe can be set to slow (140 rpm to 1,750 rpm), medium (320 rpm to 3,670 rpm) or fast (470 rpm to 5,350 rpm). The medium speed range took care of almost all of our needs. And because the belt setting was rarely changed, speeds were varied simply by turning a dial.

The Delta, Fisch, General and Jet have six speeds each (see the charts for more specs). To change speeds, the motor must first be raised and then a V-belt shifted to the appropriate position on a step pulley. While the procedure isn't a major headache, it falls short of the simpler Nova system. Also, the small belts on all of these lathes made belt tensioning a bit fussy. If it's too loose, the belt could slip; if it's too tight, the belt could strain the bearings.

Cast-iron parts make a beefier machine

A lathe should feel solid and steady during the turning process. Excessive vibration or movement can interfere with tool control and,

A plywood base adds support. *To make sure these machines don't move around while in use, it's a good idea to bolt the feet to a piece of plywood, then clamp the plywood to the bench. The only lathe not eager to wander was the General. Its large, soft rubber feet helped keep it in place.*

Photos, this page (top) and facing page (bottom): Tom Begnal

Faceplates welcomed. *A steel faceplate is supplied as a standard item on all of the midi-lathes reviewed.*

ultimately, the quality of the wood surface. While the midi-lathes aren't as rock-solid as most full-sized lathes, they are hardly rickety, mainly because the beds, headstocks and tailstocks are made from cast iron, a material favored for its vibration-dampening property. Also, on each of the lathes we looked at, the way on the bed—which allows both the tailstock and tool rest to slide—was ground smoothly.

We did notice, though, that because midis are relatively light in weight, all but the General moved around on the benchtop a bit when in use. Four large, soft rubber feet kept the General lathe from wandering. To keep the others solidly in place, it's a good idea to bolt them to a plywood base and then clamp the plywood to a sturdy workbench.

Headstocks have sturdy spindles

The 1-in. headstock spindle really separates these lathes from the previous generation of minilathes. Those earlier lathes used ¾-in.-dia. spindles, making them more likely to flex and vibrate.

Each of the five lathes has a headstock spindle with 1-in. by 8-tpi threads and a #2 Morse taper. And all accept a faceplate. The Nova allows outboard turning when used with an optional outrigger unit.

Two lathes, the Delta and the Jet, come with a handwheel at the outboard end of the spindle. This useful feature makes it easy to check tool-rest clearance and to examine work in progress.

Better and best. *Only the Nova uses a live single-point center (right) in the tailstock; the other midis use a live cup center (left). The students favored the live-cup version.*

Tailstocks offer live centers

Except for the Nova, all of the midi-lathes have a tailstock spindle with a live cup center and a #2 Morse taper. The Nova uses a live single-point center along with the #2 Morse taper.

All proved to be an improvement over the dead cup center of old, but for most work we preferred a live cup center over a live single-point center because the live cup center engages the wood

GENERAL 25-100 M1

By far, the General is the heaviest of the midis, weighing in at 106 lbs. At 15 in., it ties the Fisch for the most distance between centers, sans a bed extension. Add the long bed extension, and it provides 45 in. between centers, more than any of the other midis reviewed.

Telephone: (514) 326-1161

Street price: $300 ($145 for long bed extension; $85 for short bed extension)

Weight: 106 lbs.

Motor: ½ hp, 3.8 amps

Swing: 10 in.

Distance between centers: 15 in. (35 in. or 45 in. with extensions)

Speed settings (rpm): 480, 1,270, 1,960, 2,730, 3,327, 4,023

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 3¼ in. travel

Faceplate included: Yes

Outboard turning option: No

JET JML-1014

This midi weighs in at just 59 lbs., a number that back muscles will appreciate. With the bed extension added, the Jet has 40 in. between centers, one of the longest. At a price of $350, it is the most expensive lathe in this group.

Telephone: (800) 274-6848

Street price: $350 ($50 for bed extension)

Weight: 59 lbs.

Motor: ½ hp, 5 amps

Swing: 10 in.

Distance between centers: 14 in. (40 in. with extension)

Speed settings (rpm): 500, 840, 1,240, 1,800, 2,630, 3,975

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 2 in. travel

Faceplate included: Yes

Outboard turning option: No

more solidly. A live single-point center can wear away at the wood and eventually loosen.

The tailstock on each of these lathes uses either a cam lock or a quick lock, providing the convenience of one-handed moving and locking. To lock the tailstock in place you simply give the handle a quarter turn. These locks worked just fine and proved to be a nice plus.

On the Delta, Fisch and Jet, a handwheel is turned to adjust the tailstock spindle in or out. The Nova incorporates a knurled knob that made the task less convenient.

The Delta, Fisch, General and Jet have self-ejecting systems for the Morse taper center, a feature we liked because it was quick and easy to use and didn't require an extra tool. You simply retract the spindle, and the center pops loose. The Nova gets the job done with a long, cylindrical piece of steel called a knockout bar. You slip the bar into the hollow spindle, then the bar is used to tap the Morse taper and free it up.

Short tool rests lack support. *A 6-in.-long tool rest, the standard for all of the machines, wasn't favored by the students. Longer tool rests are available aftermarket.*

A longer tool rest would be a nice upgrade

All of these midi-lathes have relatively short (6-in.) tool rests, which drew many complaints from the students. They wanted a longer tool rest that wouldn't have to be repositioned as frequently when turning a long piece.

A longer tool rest (12 in.) is available from Fisch as an option. We tried it, and it quickly proved to be a hit. It also worked on all of the other midis, but to fit the Nova we had to sand down the shaft diameter a bit. By the way, Fisch also offers an optional curved bowl-turning rest.

The best full-sized lathes feature a cam lock to secure the base of the tool rest. A cam lock allows for easy one-handed adjustments of the tool rest. The midis all had a sturdy scaled-down version of the cam lock that worked just fine.

Choosing a favorite was a challenge

By the end of the semester, all five of these midi-lathes had accumulated a good many hours of run

Photos, this page (top) and facing page (top): Tom Begnal

NOVA MERCURY

Although it's the lightest and most compact of all the midis, the Nova is limited to 8 in. between centers without a bed extension, 20 in. with one. Variable-speed control makes it quick and easy to change speeds. It's the only one that allows outboard turning.

Telephone (Woodcraft): (800) 225-1153

Street price: $300 ($50 for bed extension)

Weight: 50 lbs.

Motor: ½ hp, 5.5 amps

Swing: 8 in.

Distance between centers: 8 in. (20 in. with extension)

Variable-speed settings (rpm): 140-1,750; 320-3,670; 470-5,350

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 2½ in. travel

Faceplate included: Yes

Outboard turning option: Yes

time. Yet all of them were still going strong. And along the way, the students were able to create dozens of remarkable turnings.

That said, when forced to pick a favorite, we ended up giving a slight nod to the Nova. It's the lightest and most compact of the bunch, so it's easier to carry and store. Those are important features in our shop.

Also, on the Nova, we like the simplicity of the variable-speed dial. It pretty much eliminates the need to fuss with belts when changing speeds. That's a nice plus.

On the downside, though, the Nova has the shortest distance between centers. Adding the bed extension increases the distance between centers, but when compared to others with added bed extensions, the Nova still comes up short in the length department.

Everything considered, though, we were more than pleased with the performance of all these lathes. Indeed, the machines did everything we asked of them from the first day of class to the last. Anyone looking to get started in wood turning, but with a limited budget or minimal shop space, ought to consider taking a closer look at these little lathes. □

In addition to teaching wood turning at Purchase College and Brookfield Craft Center, Andy Barnum builds furniture at his shop in Carmel, N.Y.

Bed extensions stretch the lathes

All of these midi-lathes offer optional bed extensions that bolt to the end of the lathe, effectively increasing the distance between centers. With an extension, the Nova, the smallest of the lathes, grows to 20 in. between centers. On the opposite end of the scale, the other midis stretch the center-to-center dimensions anywhere from 37 in. to 45 in. (see charts). Once all of the bed extensions were installed, we checked each one for alignment with their base castings. We were pleased to find that all of them lined up, with the tool rests and tailstocks sliding smoothly from one casting to another. Also, with the bed extensions added, we did some spindle turning with the tailstock positioned for the maximum distance between centers. All of the midis handled the extra turning capacity with no noticeable difficulty.