





**Now we are into a red zone: large diameter (17"), heavy, out-of-round/balance blank. If the lathe can handle such a piece, I progress from a point just below vibration to a modest speed as it becomes more balanced. However, with a rim speed of 51mph at 1,000 rpm, I never find it necessary to crank up much speed.**

### The skill of the turner

With NASCAR racing and woodturning, a true professional can often work at higher speeds. As your skill and control improve, you can turn at greater speeds. However, unless you are a production turner working on a piece-rate schedule, high speeds are not really the answer—so be careful here. Even production turners have had serious accidents related to speed. In most cases, folks don't really care how quickly you made something—only how well it turned out.

### The material

I often hear it said that you get a better cut at higher speeds. True to a point, but in reality there are still other factors related to the material that affect the quality of the cutting action. The moisture content is one (generally the wetter the wood, the cleaner the cutting action), orientation of the grain as well as consistency in grain direction (cutting against the grain or grain that is wild and erratic causes problems), and species (compare the cutting qualities of fir against pear—they don't even seem to be related).

Sometimes I do get a cleaner cut by raising the speed (you are getting more cuts per inch of travel)—but other times I get better results by not raising the speed and only slowing my feed rate (I move slower, and thereby get more cuts per inch of travel). And add to this the question of tool sharpness, working at higher speed becomes a smaller component of the equation. Finally, too much speed contributes to the problem of ribbing or chatter when the material flexes or distorts.

### Recommendations for choosing a speed

Yes, there are many variables. First, be aware of the speed your lathe is set to even before you mount a piece or turn it on. Some

serious accidents have occurred by not heeding this warning. Next, weigh all the factors for a particular piece on the lathe, especially diameter and mass. And the less stable your lathe and the less experience you have, get the blank as close to round and well centered before turning—this is primarily an issue in bowls, platters, vessels, and the like. For between center work, I saw off the corners when the diameters go above 4"; below that, a large roughing gouge handles the "out of round" safely.

It is always better to start at the slower speeds with a piece and gradually bring up the speed. This all raises the question: Can you turn too slowly? If the cutting action is choppy and labored, then speed up to the next level on your machine. If that next level leads to excessive vibration, you may have to live with turning at a slower speed. Always work at a speed that feels safe, controlled and comfortable for YOU. Finally, a sharp tool at the right cutting angle seems far, far more important than cranking up the speed to "do a better job."

SPEED OF LATHE-TURNED OBJECTS AT DIFFERENT RPM							
		250 rpm	450 rpm	600 rpm	1,200 rpm	1,800 rpm	3,000 rpm
RIM SIZE (outside dia.)	1/2" dia.	.4 mph	.7 mph	.9 mph	1.8 mph	2.7 mph	4.5 mph
	6" dia.	4.5 mph	8.0 mph	10.7 mph	21.4 mph	32.1 mph	54.0 mph
	12" dia.	8.9 mph	16.0 mph	21.4 mph	42.8 mph	64.2 mph	108.0 mph
	14" dia.	10.4 mph	18.7 mph	25.0 mph	49.9 mph	74.9 mph	125.0 mph

Alan Lacer ([www.alanlacer.com](http://www.alanlacer.com)) is an *American Woodturner* contributing editor. He lives near River Falls, WI.