

Kurt's clinic

Kurt Hertzog gives some answers to readers' questions

Second-hand lathes

Question: There is a used lathe for sale in the newspaper. It says it is working and in good condition. Should I consider a used machine? What kind of problems come with buying used?

Answer: In short, yes. By all means, consider buying a used machine. Much like a used car, if it hasn't been abused and it has the features you wish, it can be a great deal. First and most important, decide if it is the type, size, and equipped the way you'd like it. A bargain price can't offset a lathe that is so big or so small it won't serve your needs. If it will serve you, take note of the model and vintage so you can be aware of the availability of repair, spare, and accessory parts. Out-of-date or obsolete model lathes aren't necessarily a deal breaker but you need to know what's available. It is also important how deep you are willing to get into things if needed.

In the US, you can sometimes buy a classic Yates American or Oliver lathe. Both of the original companies have been out of business for many years. Some of their equipment is still running well after 100 years of use. You can still use, modify, and repair them, provided their castings are mechanically sound. Lathes from either of those companies are sought out for their capabilities and robustness. There are other companies around the world that fall into the same situation. Knowing the size, model, and vintage of the lathe for sale will let you find out if repair parts and a competitive aftermarket accessory market exist. You will have a far more limited selection of accessories for lathes with uncommon threading or tapers. If you know the size, footprint, swing, between-centre distance, horsepower, etc. will meet your needs, it's time to view and test it out in person.

It's always wise to take along another experienced turner to assist your examination and trial. They are not only another set of eyes but aren't viewing through the eyes of an anxious buyer. Be certain to take your own PPE since you'll want to turn on it. Examine the overall condition and run the lathe. Mount some wood and do some turning. Do the electrics work properly? Any noises in the bearings or drive system? Do the banjo and tailstock move easily and lock up properly? All of these items

can be repaired or replaced but do you want to get into that and does the price reflect the current operational conditions. Does the lathe come with your needed accessories?

Problems you should consider or address: uncommon or unavailable spare parts if needed now or down the road; non-standard accessories needed; worn mechanics; rusted or bent mechanics; noisy/poorly running drive components; welded or repaired structural parts; and any signs of abuse. If things are evident that need attention, make the decision about your willingness to undertake repairs or modifications. If there is anything that is of concern or in need of repair, does the asking price fairly reflect that situation to your satisfaction? Over the years, I've bought used lathes and haven't had any issues. They were good value and I went in with my eyes open. Look things over well and make an informed decision.



PHOTOGRAPHS BY KURT HERTZOG

I recommend you always turn on a potential purchase. Any issues of motors, drives, bearings, and alignments will usually become apparent quickly

Bench grinders

Question: What is better for my sharpening grinder, a high speed or low speed? What is the main difference? Why one or the other?

Answer: In the world of grinders, there are slow speed, high speed, and variable speed. I've personally never found a need for variable speed when sharpening woodturning tools. If you do find a variable speed, simply use it at the speed setting you wish. With variable speed eliminated as a shopping feature, we have the high speed and low speed. The rpm of the grinder is determined by the motor winding at manufacture and the frequency of the AC power. With a 120v, 60hz power source, a



My 180mm Baldor slow-speed grinder. Notice the 25mm-wide wheels and cast iron toolrests

slow-speed wound grinder runs at approximately 1725rpm and high speed at 3450rpm. But rpm really is not the final factor. What is important is the surface metre per minute (smpm) of the abrasive past the steel. Much like a lathe spinning at 3000rpm. If you are turning a 20mm-diameter pen part, smpm at the circumference isn't of any real concern. If you are turning a 405mm-diameter platter, you are in a very serious situation turning at 3000rpm. Your grinder rpm interacts with the diameter wheels exactly the same way. The rpm multiplied by the wheel diameter yields the speed of the abrasive as it passes by the steel of your tool. Correct for units and run the maths. You'll see that the

smpm of a slow-speed 150mm grinder @ 262.89 metres per minute, contrasted to a high-speed 200mm grinder @ 701.04 metres per minute presents a huge range. Different mixes of diameters and speeds fall in between these extremes. The reasons for one over the other vary. Some believe that the slow speed grinder with lower smpm is more forgiving for the newcomer. The grinding process would run cooler and problems wouldn't happen so fast. Some believe that high-speed grinders with higher smpm do a better job because of the rate of material removal. I'd suggest that once you've learned to sharpen, either speed will work fine. Because of the rate overlap, your grinder speed and wheel diameter

mix are your call. I find that I like the hollow grind of a 180mm or 200mm grinding wheel better than a 150mm. A 180mm or 200mm grinder may accept a range of width of wheels, without having to remove the safety guards, thus increasing the grinding workspace and useful life. It is a personal choice. Many fine turners use a 150mm grinder of either speed. My opinion is that your choice of speeds is not important. Learn to sharpen and you'll be comfortable with either. I highly suggest that you focus more on using quality toolrests and grinding jigs more than grinder speed. Get the best grinder you can while focusing your emphasis on the stability and serviceability of the rests and jigs.

Carbon steel tools

Question: I hear that carbon steel tools are the best for woodturning. Are they? If so, what makes them so good?

Answer: While carbon steel tools work fine for woodturning, I'm not sure I'd say that they are the 'best'. It depends on what best means to you. Sharpest, longest-lasting edge, easy to sharpen, most economical to buy, largest selection to choose from, or something else? Carbon steel tools – more accurately high carbon steel tools – have the admirable characteristic of taking an extremely keen edge compared to other modified chemistry steels. As such, this steel is used for many edged tools for woodworking and woodturning. A wide variety of bench tools take advantage of this keen-edge sharpening capability. The key word being bench, meaning being used by hand and not generating a lot of heat. Bench chisels, plane irons, marking knives, carving tools, and others needing a keen edge use high carbon steel. The main drawback of carbon steel tools is their susceptibility to damage from heat as compared to high-speed steel and others. Careless sharpening can overheat and damage the temper of carbon steel tools. That is why those tools are rarely, if ever, taken to a grinder to sharpen.

High-speed steel was invented to make tools more heat and wear-resistant than carbon steel. High-speed steel has become the commodity steel for most power cutting tools and is found in nearly every woodturning tool today. High-speed steel and today's more advanced alloys make finding carbon

steel woodturning tools far less common. Carbon steel woodturning tools from years past are most often found used in garage sales, auctions, and turning shop buyouts. They can be a real find if they haven't been damaged by overheating and damage by their previous owner(s). Careful sharpening and use are key. Heat-damaged tempering of carbon steel tools can be repaired. The tool can be

hardened and tempered again to bring it back to serviceable use. The heat-treating process isn't terribly difficult but is usually beyond the capability of the hobbyist. In conclusion, the reality is that carbon steel has been passed by for turning tools. Embrace high-speed steel and beyond a better choice for turning tools, and take advantage of the characteristics it brings to the party.



The beauty of high-speed steel is the ability to retain its properties even with higher temperatures

Send in your questions to Kurt's email: kurt@kurthertzog.com