Tips for gentler grips

PHOTOGRAPHS BY KURT HERTZOG

Kurt Hertzog shares his techniques for gentler work holding

KURT HERTZOG

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For the most part, our work holding is planned and executed to be as safe and as firm as possible. The purpose is to allow for whatever speeds and feeds are best for that aspect of turning being done at that moment. Much of it is pretty stressful on the work and, therefore, the work holding. For most of us, putting a tenon on the work and reefing down the chuck jaws is pretty simple. However, there are times when a gentler touch is in order. That might be a bit different from the usual for some turners. Don't mistake the term 'gentler' for unsafe. All work mounting needs to be safe for the user, but often the speeds and feeds at various points of the project are far less demanding, allowing for less of a death grip. At that point, sometimes it is simply sanding or removing the nubbin from the bottom of a bowl or other turning. At other times it is not even under power, but a method to hold the work for after turning decoration or spray finishing. In some of these instances, the work holding needs only support the weight of the turning and often doesn't even need to be truly centred. This month, I'd like to share a few of the very simple things and methods that I use when the gentler touch is in order. This article isn't intended to be simplistic or condescending, but rather to offer these ideas on the chance you haven't tried them or given them a fair shake. These are very low cost, other than vacuum systems, and very flexible in use. Of course, it isn't all-inclusive but meant to be a thought starter for you as you sort through any special needs you have in your work. Don't reserve these ideas only for light work holding. Coupled with standard work holding, they can add value at those times by preventing marring and adding the safety net should things come loose.

Safety

As always, safety is the first priority. Do not use ideas presented here or similar information if you have concerns about your safety using them. Get additional information, assistance from someone with more experience or find another way that allays your concerns. No project is worth putting your wellbeing at risk. As noted above, these methods add value for low speed and low demand holding when a light touch or no power is needed. Please keep that in mind as you plan. Please follow my long given advice to keep the tailcentre engaged until you are forced to remove it. It is about as wise advice as can be given.

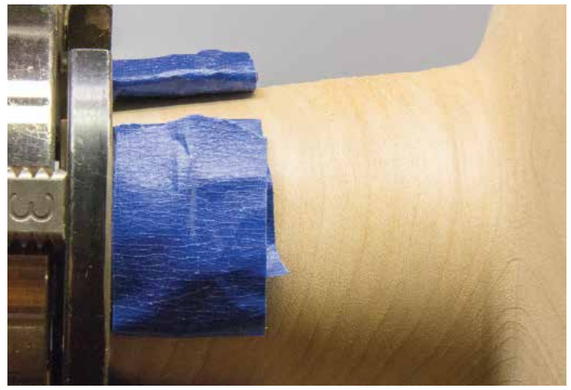
Tape

In my shop there is a roll of low tack painter's tape available within reach throughout the shop. I use tape extensively for everything, from masking the chucks to prevent finish hitting them to helping hold work in place. The reason for the low tack aspect is simple. It can be applied to anything with little concern about leaving adhesive residue or removing finish. Using this tape to help pad the grip of a chuck works quite nicely. Easily applied and when done in the quantity needed, you can use the jaw compression to hold things with little fear of marring the wood. It works equally as well whether applied to the chuck jaws or the turning. On occasion it is necessary to keep your tape wrap start and finish even, in order to maintain centring. This is rare but depending on the accuracy required, this simple attention to detail will pay dividends. Using the tape to prevent marring on surfaces where your turning will contact metal is always a good practice. That prevents the damage to finished turnings even if unnecessary for work in the early stages. Should your hold require a safety margin, not for force but for insurance should your primary grip slip, I use my low tack tape underneath a high strength tape, such as fibreglass reinforced tape. That allows for the high strength, high tack tape to be used while protecting the surface of delicate parts or already finished turnings. Could you use other tapes? Double-sided, carpet tape, duct tape or other? Perhaps, but I don't find them conducive to no residue, no damage kind of assistance in this mode.

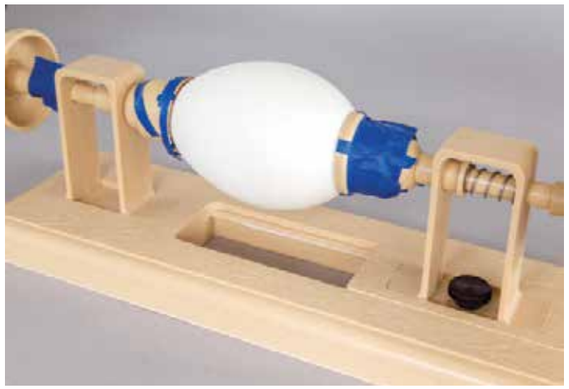
Make it a habit to put tape in areas where the wood will contact. Easily done and removes the worries

Some tape on the jaws prevents marring of my turned roof. For size reference, the drill is a No.62

Tape can be padding or just protection from sharp corners. My ornament assembly press



Tape for anti-marring will work nicely, whether taped around the turning or on the jaws



Not really for preventing marring, but just for softening the edges and providing some grip

Adhesives

I don't typically use adhesives in these light grip applications, but one that lends itself well is hot melt glue. Hot melt glue is available in a variety of strengths from the low strength crafter's glue to the industrial strength versions. For these applications, I use the crafter's version. I use the glue sparingly to tack my turning or other holding mechanism in place. When applied to clean surfaces, the hot melt glue provides surprising strength. You can apply dots of glue at various locations or continuous runs depending on your needs. I find that a few dots strategically placed work well. For removal, a simple push from the side will break the blob of glue free. Another easy removal method is application of denatured alcohol. That will undermine the attachment of the glue to the surfaces and let the glue fleck right off. A concern when using denatured alcohol as a release agent is any potential damage to your turning. An unfinished turning won't care but any alcohol sensitive finish already applied might be affected. The chemical is used sparingly but this potential still needs to be considered. The more common concern is the heat from the glue damaging your work. For unfinished pieces it is rarely any issue but for finished pieces, be cautious. My method for preventing heat damage is to protect the area receiving the glue with low tack painter's tape. With the tape protecting the surface from heat, I can apply the glue achieving a higher strength attachment than the tape would have provided alone.

Some hot melt glue dots will fasten your turning to your wooden faceplate, just a few dots will do

The beauty of hot melt glue is the easy removal. Pushing from the side usually breaks it free

If protection of the wood or finish from the heat is needed, some low tack tape will assist

Packing stretch wrap

You can buy packing stretch wrap in most home supply stores or in the shipping products area of the mass marketers. Failing that, you can always use the clingfilm intended for kitchen use to accomplish the same thing although it's not as convenient when applying or as strong. Using stretch wrap has so many advantages over other methods. It is a mechanical attachment with no adhesive involved. It is safe over any material or finish. Being lightweight and having a modest cost, it can be used as extensively as needed and discarded after use. The biggest advantages I find are it is see-through and it can be easily cut. With coverage in the additional areas to provide support, you can see where you want to cut and then cut right through the wrap into the desired area. The other wrap holds things in place while you work. The stretch wrap is very strong when stretched in place and can be wrapped as many times as you feel necessary. Even when I do not intend it to be a light touch attachment method, I often use wrap as extra insurance with my standard work holding. I will wrap turnings being held in a chuck so any incident when the turning could come loose contains the turning right there. Preventing a turning from being damaged by contacting the bed of the lathe or adjacent walls, not to mention myself, is the goal.

Stretch wrap packing tape works well for low stress mounts and for 'insurance'

Padding

Creating a friction drive to hold and drive your work presents many opportunities. Not only can you cut your friction drive to any shape needed to support your turning but you can also get very creative with padding. Whether you use the adhesive back foam products or just folded-up tissue or anti-slip matting, you can adjust the amount, placement, thickness and compression to suit your needs. There are occasions where you don't even need to create a friction drive. I often use a chuck with the jaws covered with padding as a friction drive. Proper padding of the right durometer allows for the tailstock to create a safe and workable drive system that will not deface the turning. I have a bag in the shop with scraps of foam rubber, anti-slip place mats, styrofoam bits and pieces of neoprene. These are pressed into service as needed to create the padding for a project. If they need to be attached to a faceplate or the like, a bit of artist's spray adhesive will do the trick. For the most part, they are used loose and just placed as needed. These bits of padding used with a friction drive turned to fit will solve nearly any problem I've run across. My friction drive selection is simply a faceplate with a scrap of wood screwed on or a block in a chuck turned to suit. Turned as needed, it can be adapted to nearly anything. Need something different or bigger? Just change the scrap wood screwed on to meet the needs. You'll find that you'll create a few of these that are keepers to be used for the common holding problems you'll face in the shop. Don't forget that padding can also be used on the tailcentre. The removal of the point or covering it, allows for padding to be a soft push from that side of the lathe. You can get as creative with tailcentre padding as you wish.

Padding can be nearly anything from paper towels to craft foam to old mouse pads

A foam pad over the jaws of the chuck is all that is needed along with the tailstock

Jamb chucks

Jamb chucks find their uses throughout the turning process. You can create a jamb chuck for the smallest through the largest items whether a lidded box top or a large bowl. With the use of the tailcentre, a jamb chuck can do heavy duty work but also lends itself to the light touch. When I use a jamb chuck for light duty, I intentionally cut it loose. I'm sure you've had the occasion to have a loose fit that you've tightened with a bit of tissue or paper towel. You can do that intentionally to present a lighter grip on your work. Rather than snap locking your turning into the jamb chuck, plan and cut it to be a loose fit to be tightened with a bit of tissue. Now you can tailor the grip from loose to snug by how many folds of tissue you use. Items that have already had finish applied can be safely and easily held in this manner. Use of the tailstock, padded as appropriate, will allow for additional work as needed but with little fear of damage to the piece. The not so apparent advantage is the easy removal of fragile parts. When I am finishing the top surface of my blackwood (*Dalbergia melanoxylon*) finial pieces, any firm grip puts the very thin walled turning at risk when I remove it. This method makes for a secure fit but easy removal.

Making the jamb chuck fit loose and using tissue helps with easy removal, avoiding marks on the finish

Very thin wall turnings are susceptible to breakage when used with a snap tight jamb chuck fit

Vacuum

Last but not least, I'll offer the idea of vacuum chucking. Some turners may not have vacuum systems available for their lathes. With the advent of lower cost systems whether vacuum pump or venturi, vacuum systems are becoming more common as time goes on. The beauty of a vacuum system is that it is infinitely flexible, especially if you are willing to create your own chucks. Even if you rely on the commercially available chucks, you'll have a very versatile work mounting system that allows for everything from huge holding forces to the minimal. If you are unfamiliar with vacuum systems or need a refresher, you can refer to *Woodturning* 240 – June 2012, 'Work holding Aids and Chucking – Part 4' – for an in-depth discussion of the basics of implementation and use. The keys to gentle holding with vacuum are selection or creation of the proper sized and shaped chuck and the proper selection of vacuum amount. The interaction of these two factors will either let you gingerly hold the part for work or, at the other extreme, will crush it into pieces. Obviously in our context here we'll opt for the light-touch hold allowing for work to be done. The simple rule for vacuum is both cross sectional areas of your turning UNDER vacuum interacting with the amount of vacuum controls the holding force. You can control either one or both but be aware the resulting holding force is affected by both. Rounding to keep the maths very simple, assume you've got full vacuum available at sea level.

If you use full vacuum, you can multiply about 15 pounds per square inch by the number of square inches you've got in effect on your piece. Your platter is reverse mounted for sanding on a 75mm vacuum chuck. At full vacuum, that creates nearly 100 pounds force on your platter in the vacuum area. With area being a radius squared, using the 150mm chuck jumps that to a force on your platter of nearly 400 pounds.

Twice the chuck diameter increases the holding force four fold. Both are incredible amounts and far from the light touch we are discussing. Be aware of things like this or you'll pull a large section of that platter right into the vacuum chuck! In my experience, I favour using a larger chuck to give me the mechanical support out near the rim but use the vacuum supply sparingly to keep the holding forces in reasonable ranges. I don't run the maths to determine the amount of vacuum or watch the vacuum gauge. I put my turning in place and then control the vacuum applied to my chosen chuck from zero up to the amount needed to securely hold my turning but nothing more. Always using the tailstock, properly padded if needed, in conjunction with the vacuum head allows for a very safe and functional work mount with nominal vacuum applied. You also have the option of using the vacuum chuck without vacuum if the friction drive provided by the seal material is sufficient for your needs. Of course, all of the holding forces you bring to bear are tempered with the work being done and the thickness and strength of your workpiece. For porous woods, some stretch wrap or painter's tape will help with sealing those vacuum leaks.

Changing from a 90mm to a 200mm vacuum chuck will magnify the force by a factor of five for the same vacuum

For the shop handy, vacuum chucks are easily made. Here from 1½ to 15 inches

Depending on your chuck size and grip, care needs to be taken to avoid crushing your work

This platter could have easily been held with the 90mm chuck but wouldn't have been supported well

With the larger chuck, the vacuum was 1/7th of the maximum to very safely hold that platter

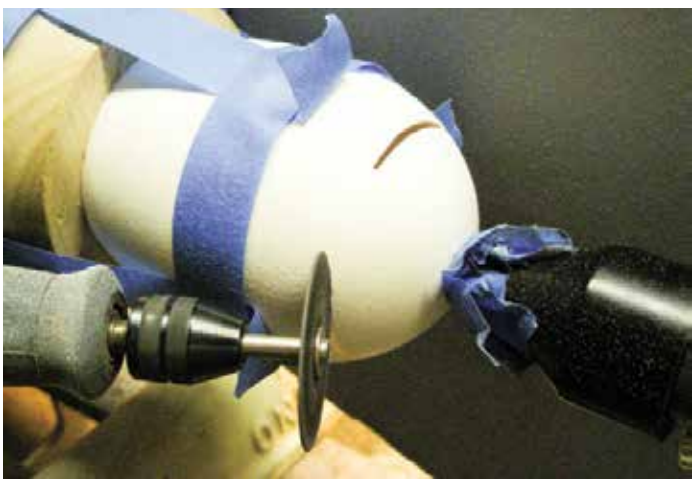
Most small vacuum leaks can be fixed with low tack tape or stretch wrap covering

Regardless of your mounting method, use of the tailcentre is wise for as long as you can

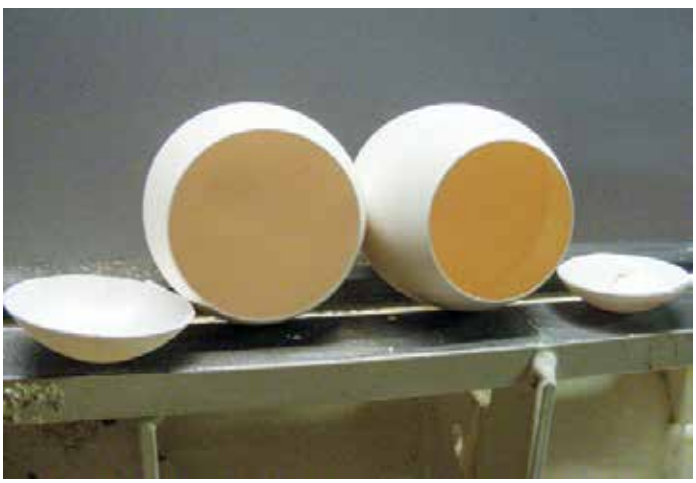
Conclusions

Work holding can be the tricky aspect of your turning project on occasion. Depending on the size, timber species and design you are creating, work holding can be straight forward or present an added challenge. Often, there are several ways to solve the problem but not always clearly a 'right' way. The ideas presented here are just some of the ways I secure and protect my work when I need the light touch. Of course, these methods also have application for standard work holding, but lend themselves to use for light holding. It may appear to be belt and suspenders in some cases, when applied to the firm grip work holding, but for little cost in time or money the added effort is worthwhile, in my opinion. Simple items like tape, stretch wrap, hot glue, rubber bumpers, foam padding and others can make your work holding more robust.

Safety is paramount whether running at low speed or higher speed so never forget to err on the side of caution. While some work holding challenges are difficult, I'm a firm believer in there is always a safe work holding solution available. Are these ideas all there is? Certainly not. These are just a few ideas I use. I offer them to you to be used, improved and expanded upon to give you a few more tricks in your bag. ●



A light but secure mount allows for cutting the ends from an eggshell



If you can do eggshells, you should not have any issues with wood