PHOTOGRAPHS BY KURT HERTZOG

# Workholding aids & chucking – part 6

In part 6 of his workholding series, **Kurt Hertzog** appraises the 'lowly' faceplate and looks at the versatility of this workmounting method

Virtually every new lathe is delivered with a drive centre, tailcentre and faceplate. The drive centre and tailcentre are pretty self-explanatory. New turners launch right in and begin their turning journey with those. Usually the faceplate supplied is a small, economical version that is put in the drawer on unpacking and stays there. The new turner often isn't ready for the typical faceplate applications and will rarely dig out the faceplate as they continue their turning experience. There are too many other great workholding devices to behold. The faceplate isn't as exciting as chucks, mandrels, vacuum systems and other available accessories.

This month, we'll explore the virtues of the 'lowly' faceplate. We'll look at the versatility of this workmounting method and explore how truly powerful it can be.

Deceivingly simple looking, there are a few things that should be considered with proper use. First and foremost are the safety aspects of faceplate usage. For something as simple as a plate you screw to things, it is likely the most often improperly used workmounting device. We will explore what is available in the faceplate market, good practices of sizing for the application, preparing the site for mounting, mounting techniques and hardware, along with energy saving tips. Don't underestimate the power of the faceplate; it will bring great versatility to your workmounting methods.


## KURT HERTZOG

**About the author:** Kurt is a professional woodturner, demonstrator and teacher and writes for *Woodturning Design* magazine. He is on the Pen Makers' Guild Council and is a member of the Board of Directors of the American Association of Woodturners (AAW).
**Email:** kurt@kurthertzog.com
**Website:** www.kurthertzog.com

## SELECTING THE FACEPLATE

The modestly priced and lighter duty faceplates, like the one that is usually provided with a lathe, will work fine for smaller work. They will also do nicely for situations where you won't be putting a lot of stress on the mounting system. These small diameter, limited in number of screw holes, faceplates should be relegated to the simpler, light duty tasks. When you shop for faceplates, make sure you plan for your service range. The most commonly available faceplates are made from carbon or stainless steels, cast iron or aluminum. Cast iron with cast in support webbing makes an incredibly strong faceplate when faced, mounting holes added, and spindle size threaded. These are incredibly heavy, especially when you go up in size. Steel is available as is stainless for those who work with a lot of wet wood. Aluminium faceplates have hit the market in a big way. They are machined and usually anodised to not only make them prettier and a bit more durable but also colour coded. Lest you worry about the strength of an aluminium faceplate, consider your air transport with its 40-plus year lifespan and incredible loading and fatiguing schedule.

When you are selecting your faceplate(s), consider your overall plan. Will you be able to afford several? If you will be limiting the number, make sure you err on the side of safety. It is far better to use a more robust faceplate than required instead of the opposite. Faceplates for the home user range from 75mm (3in) to 150mm (6in) with larger from 200mm (8in) and up available for more extreme applications.

When you are picking your faceplate for an individual mounting application, make certain that you have sufficient strength to not only bear the weight load but also the forces you'll be putting on the blank during turning. The number of screws, size of the screws, screw pattern diameter, and countersunk holes are as important as the overall faceplate diameter. If you err, err on the side of bigger and stronger than needed. Remember to use the tailcentre for added stability and support even with a faceplate. Remove the tailcentre from use only when forced to by need.

Faceplates are not only available in different sizes but also in a variety of materials. The price varies from only a few pounds to hundreds depending on the manufacturer and service range

Not only prettier than the painted or rusted faceplates, the machined and anodised aluminum versions are very strong for their weight and size

If you need a chain fall to lift your blank on to the lathe, heavy duty faceplates are in order. As shown would work but the larger cast faceplate shown on edge would be the even safer choice

## MOUNTING THE FACEPLATE

The number of screw holes available is often not as important as the size of screw that the faceplate is designed for. A properly sized screw in a countersunk hole is far more supportive than the 'button head' screw, especially if it isn't the exact proper fit. Be certain that your selection of screws is a size that the faceplate is designed for and is of high quality. Avoid deck screws, dry wall screws, and other brittle high pitch rate fasteners. I take my faceplate with me when I'm in the hardware store selecting fasteners and always buy sufficient quantities to have plenty on hand. Get an assortment of lengths as well so you can accommodate the various needs you'll have over time. Quality hardware does cost money so make certain any bargains are smart purchasing, not lesser quality.

The surface where the faceplate sits is of key importance. Your faceplate itself should be perfectly flat and shouldn't flex. The faceplate surface to wood surface match should be flat to flat. That is in a perfect world. If you need to prepare that wood surface, truly flat is almost impossible to turn. You are better off with a very slightly concave surface on the wood so the faceplate can uniformly sit around its perimeter and be securely fastened to the work with the mounting screws. The worst and most insecure condition is when the wood surface is convex so the faceplate sits on a 'high spot' and is held in place with the screws. This puts tremendous strain on everything and has a tendency to work loose.

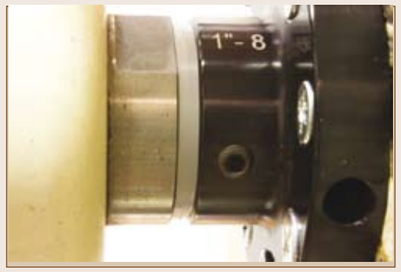
Properly fitted, high quality screws are essential to safely mount and use a faceplate on your lathe. Buying a quantity of screws will assure that you have replacements on hand when the need arises

## MOUNTING THE WORK

Like any other threaded fastener engagement, a thread to thread lockup on the lathe is fraught with problems. It isn't strong or durable, won't maintain clamp load, and certainly isn't accurate or repeatable. In order for your faceplate to do the job properly, the faceplate flange should be properly engaged with the flange on the lathe spindle. These two machined surfaces will properly align and secure things. Dismounted and remounted, it will provide excellent repeatability and accuracy. If, for whatever reason, your faceplate flange won't meet flush with the headstock flange then spacers should be used to allow flange to flange contact. There are Teflon washers available for just this purpose. They also allow for ease of removal. Notice that the 'grub' screws on the faceplate are tightened down. These screws will prevent the faceplate from being unthreaded on a rapid deceleration or should you have need to run the lathe in reverse. I use them as a good safety precaution. It only takes a moment to snug them up. Another recommendation is to avoid extensions and size adaptors if possible. I think staying close to the headstock when you have this much mass and leverage based on the faceplate and the mounted work is a wise idea.



## MOUNTING THE WORK (CONT.)




Any space that remains once the threading is fully engaged must be taken up with a uniform thickness spacer so the headstock flange is in contact with the faceplate flange. Teflon washers are widely available

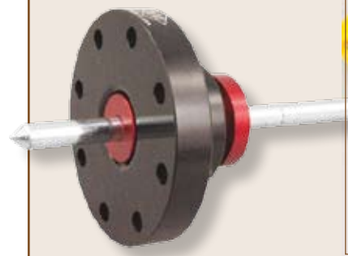
ABOVE: I try to avoid using long spindle extensions or size adaptors. I would much rather have the faceplate close to the headstock and threaded to match than extended or adapted

## OTHER USES

Simply mounting your wood to be turned is just the tip of the iceberg for using faceplates. Mount plywood – flat for mounting, uniform thickness requiring no truing – to make friction drives of any size. Without a pad, it's a hot melt attachment surface. With a pad and through hole, it's a vacuum platen or friction drive. Any size, shape, or purpose drive or vacuum chuck can be made. Easily turned to suit with craft foam seals for vacuum chucks. Reusable, remountable, repeatable, accurate, and inexpensive. For the shop handy, a threaded nut, some steel plate, and welding creates a faceplate. Not always pretty but cost effective and strong. Notice the grub screws built into M33 threaded faceplate and the double nut to allow sufficient thread depth for proper flange to flange engagement. Don't miss the workholding opportunities the 'lowly' faceplate presents. Use the power of the faceplate to create mandrels, friction drives, vacuum chucks, and more.

## HELPING YOURSELF

Some of the fun of woodturning is all of the gizmos and gadgets. If you mount your faceplate to the work, do some work, then want to remove the faceplate and find the true centre, it is challenging to be accurate. There are handy gadgets available to push into the thread and mark the centre. You certainly could turn a block of wood with a nail hole drilled in it that would work equally as well. Screwing in screws, especially in difficult woods and with long threads, can be very tiring. Using a power driver makes the job much easier. There are battery operated drills and drivers that work nicely. There are even impact drivers that excel at the task. Remember that you drive the screws just like tightening the lugs on a wheel. Start in one spot, go directly across, then half between those, and then across, etc. I rely on the adjustable clutch to properly seat the screws without breaking the screw, stripping it out of the work, or damaging the drive slot. Square drive screws are not always available but certainly easier to use without damage. These resist driver slot damage and allow for extensive reuse of the screws.



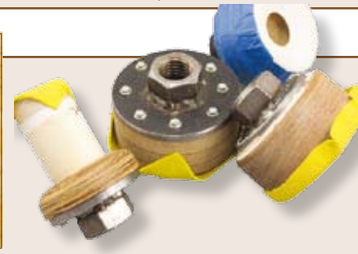
A centre finder that will slide into the faceplate thread and accurately mark the centre point of the faceplate on the work. Easily made from wood and a nail at home

Battery powered drills, power drivers, or impact drivers will take much of the burden off you to properly and effortlessly drive the mounting screws home

Take advantage of the gear reduction in your driver and the adjustable clutch to drive the screws home without stripping out the screws, breaking them, or damaging the driver slot

If you have a choice, select the square drive over the Phillips or Posi-drive fasteners. Less prone to damage during insertion and removal makes them extensively reusable

A faceplate mounted to a piece of plywood makes a wonderful friction drive. Padded or not, you can adhesively bond, vacuum bond, or just plain friction drive things with use of the tailcentre



Vacuum chucks, actually shaped friction drives as well, are easily made with a faceplate and a lump of wood. Re-mountable, reusable, repeatable, and cost effectively made to order

LEFT: The shop handy woodturner can easily make faceplates for a very nominal cost. These can be created for the desired lathe threading, faceplate size, hole sized and spaced as needed economically