

Ask the Pro

Chuck Jaws and Tenons

Between September 2009 and March 2010, the C.O.W. newsletter featured a forum in which members could ask the club's more experienced woodturners questions. What follows are three of the questions asked and the pros' answers.

What kind of jaws should I buy? The chucks mostly come with a serrated jaw but I have seen some of the club turners use a "dovetail" jaw.

Floyd Anstaett:

Different chuck manufacturers use different types of jaws. Nova and Vicmark, both high quality chucks, use a dovetailed jaw as standard equipment. The Oneway chuck comes with a serrated, profile milled jaw. I have used both and currently own a large Vicmark with the dovetailed jaws and five Oneway chucks with the serrated profile milled jaws. Some turners prefer the dovetailed jaws and some prefer the Oneway type jaws.

One thing that I will mention right off the bat is that I haven't bothered to keep up with all of the new chucks that have come out recently so I can't speak for them.

My own preference is the serrated profile milled jaws that Oneway offers. These jaws use a spigot with parallel sides. I find the parallel sided spigot easier to make accurately than is the spigot with the dovetailed sides. I also like the profile milling as it presents a larger gripping area than the dovetailed jaws do when using them to grip a spigot that is larger than the closed circle measurement of the jaw set.

I rarely ever find myself fortunate enough to be using a spigot that is exactly the right size for the chuck jaws. The spigot is almost always larger than the closed diameter measurement of the jaws which means that the jaws are going to be gripping the spigot at the outer ends of the four jaws. The dovetailed jaw that I have used tend to grip the spigot at the fairly sharp ends of the dovetail. The profile milled jaws also grip the spigot at the outer ends of the jaw, the difference being that the Oneway jaws have a milled area at the ends of the jaws which tend to offer a larger gripping surface.

A lot of turners like the dovetailed jaws and a lot of turners, myself included, tend to prefer the Oneway type jaw.

I think the best thing that a potential chuck purchaser should do is look at both types of jaws and then decide for himself or herself which one seems to be the best.

Mark Damron:

The size work you are doing will determines the size jaws needed per question.

How big should the tenon on the bowl be in relation to the diameter of the jaws?

Floyd Anstaett:

The diameter of the spigot or tenon that will be gripped by your chuck will be determined by the size of the jaws on your chuck and also, to a degree, the size of the bowl if that's what your making.

As an example, the standard "Number Two" jaws on the Oneway Stronghold chuck will grip the outside of a spigot that ranges from 1-3*/4" to 3-1/4" in it's compression mode. If I am using the #2 jaws I will usually create a spigot that is around 2-1/2 inches in diameter, give or take a little either way.

In it's expansion mode, the Stronghold chuck #2 jaws will expand from 2-3/8" up to 4" so if I was going to use this chuck in an expansion mode I would create a recess that will be compatible with the range of movement that the chuck offers.

The diameter of the spigot or the recess will be influenced, but not controlled by, the diameter of the piece that you are turning. The bigger and heavier the piece is that you are turning the larger the spigot or recess should be. Remember, you can get large jaws for all of these chucks so if you are turning something that is seriously large and heavy you may want to consider the purchase of a jaw set that is larger than the standard jaws.

Mark Damron:

Normally the tenon should be no less than 30% of the diameter of the pieces you are turning. 2 1/2" to 3" jaws are normally a good start for most turning.

How deep should the tenon be in relation to the depth of the jaws?

Floyd Anstaett:

When you are going to use your chuck in the compression mode the spigot should be long enough for the jaws to get a good grip on but should never exceed the depth of the jaws. The workpiece should always seat on the top of the jaws and the spigot should never touch the bottom of the jaws. Depending on the size of the piece I am turning I will usually make a spigot that's about a quarter to three eighths of an inch in length, give or take a little either way.

When I'm making a recess that will be used to contain the chuck in it's expansion mode, I make the recess as deep as possible but not deeper than the height of the jaws. In other words, I want the tops of the jaws to seat out against the bottom of the recess.

Mark Damron:

For smaller work go with a 1/4" to 3/8" deep tenon and deeper for larger work or what your jaws will allow.