



# The Jayhawk Oval Fitting System

Order #15-2281

## THE ART OF OVAL FITTING AND DRILLING

Ovaling thumb holes has been around for many, many years. However, the only way to fit for ovals was to use internal/external calipers. Some people have mastered the use of this tool in fitting a customer's hand. Most, however, avoid ovaling as they find that using calipers (which are very sharp and uncomfortable to the customer) doesn't give their customer a feeling of confidence in the person fitting their hand. And, most of all, the customer never actually had anything to put their hand into and feel to know whether the oval was the right thing for them. Another downfall to the original method was that you had to understand the mathematics of creating an oval hole on a milling type machine along with adding more formulas to try to create the proper degree of angle.

Jayhawk Bowling Supply has now provided the industry with the simplest method of fitting oval holes. With this system, if you have a Jayhawk adjustable measuring ball, you can even put an oval insert in the ball so your customer can actually feel what their new hole will feel like!! This is extremely important in today's market. As the price of bowling balls increase, it is very important that you have the tools to give your customer the best value for their money. In the following instructions, you will find simple solutions to provide more precise service.

## MILLING MACHINES

All milling machines used in the pro shop industry are basically the same. This means that each has two tables that move creating what is known as "axis". One table moves left and right, this creates what is known as the "X" axis. The other table moves front to back and this creates the "Y" axis. If you look at the oval drilling guide from Jayhawk you can see that the diagram shows both the "X" and "Y" axis. While this diagram may look very high tech, it is still plain to see that "X" moves left to right and "Y" moves front to back. As we said, all milling machines are basically the same except the jig type that is used to hold the ball in place. If your machine has a vacuum type jig or any cup style jig you set the pitch you desire by moving the tables to create the desired pitch and then move the ball to align the bit to the lines you wish to cut. No matter where you move the ball this does not change the pitch because the "X" and "Y" axis of the tables is the same distance from the center of the ball. If your machine has the type of jig that allows all three holes to be drilled before removing the ball, this gives another set of "X" and "Y" axis. It allows the jig to move to align the ball to the bit. As a simple reminder, imagine that if your tables are set at zero and you drill a hole into the ball, the point of the bit will end up at the center of the ball. If your pitch is set at 1/4, the point of the bit will be 1/4 away from the center of the hole. Always try to keep things as simple as possible!!

## SELECTING THE PROPER SIZE

As you will notice, there are twelve (12) different fractional sizes in this set of inserts. Each one of the fractional sizes has 3 different widths. The set is made this way as not everyone has the same width of thumb. One of the major reasons ovaling is becoming so popular is that the methods have changed so drastically!! Many pro shop operators have always drilled a round hole and then with a file and bevel knife would work the ball until it fit the customer properly. This was all well and good and many pro shop operators do this very well except for one thing. It is virtually impossible to make the next ball feel exactly the same.

The first thing to do is select the proper size insert that fits the customer's thumb. This can be done by simply sliding the inserts over the thumb until you find the one that fits the thumb all around. It must fit the thickness of the thumb as well as the width. Once the selection has been made, place the insert into the adjustable ball and complete the sizing for the fingers as well. If you are not using an adjustable ball, simply set the insert aside until your other fitting is complete. The degree of angle cut in the inserts is 45 degrees. We use this as it is a standard starting point. Most ovals that you fit will be 45 degrees in angle if the span is fit correctly. Not to worry because if you need other angles the chart will provide information for all other angles. The inserts are usable for both left and right handed bowlers.

## THE OVAL DRILLING CHART

Look at the left hand column on the chart at the 45 degree angle. You will notice that the "X" and "Y" axis movements are equal. Anytime you make equal movements you will create a 45 degree angle. This is the simplest of all angles. The chart also gives you the movements to create ovals up to .120 thousandths of an inch. Always remember that this number is in addition to the size of the round hole that you drilled in the ball. For example: a 1" hole is 1.000 and a 1" hole with .120 thousandths of width in the oval would be 1.120. This is what the total width of the hole will be when you complete it. It is recommended that when you drill ovals, never make movements of more than .030 thousandths at a time. Doing so will create a line in the hole from the top to the bottom that you would have to file out. Making smaller moves also makes for a better looking cut for your oval. If your machine has digital pitch scales, these moves are easily read on the digital scales. If your machine does not have these, you can still be just as accurate, but you must use the measuring rings that are on the inside of the handles for the milling machine. These rings are just as accurate as the digital scales, just not as convenient!! Also remember that when moving the tables always move past the mark you want and move back to it. This removes the table slack and will increase the accuracy of your work.

## MAKING THE OVAL CUT

After you have drilled the round hole and determined the degree of oval your customer needs, simply go to the chart for the moves you need to make to create the same hole that was in the fitting insert. For example, if your round hole was 1" and you had fit your customer with the 1" insert that was .090 wide and the degree of oval desired is 45 degrees and your customer is right handed you will move the table left .021 thousandths and the other table away from you .021 thousandths. By making these moves this will make a cut of .030 thousandths. If you need .090 simply move another .021 in each direction and make another cut. This will make the width of the oval .060. If you need to get .090, simply repeat the steps again until you have made the width you desire. One of the most important tips is to record all changes of what you are doing on the bowler's spec sheet!! If your customer is left handed, simply move the table to the right instead of left as shown on the drilling guide. We at Jayhawk Bowling Supply are sure that this system will be the tool you need to give your customer the best value for their money!!