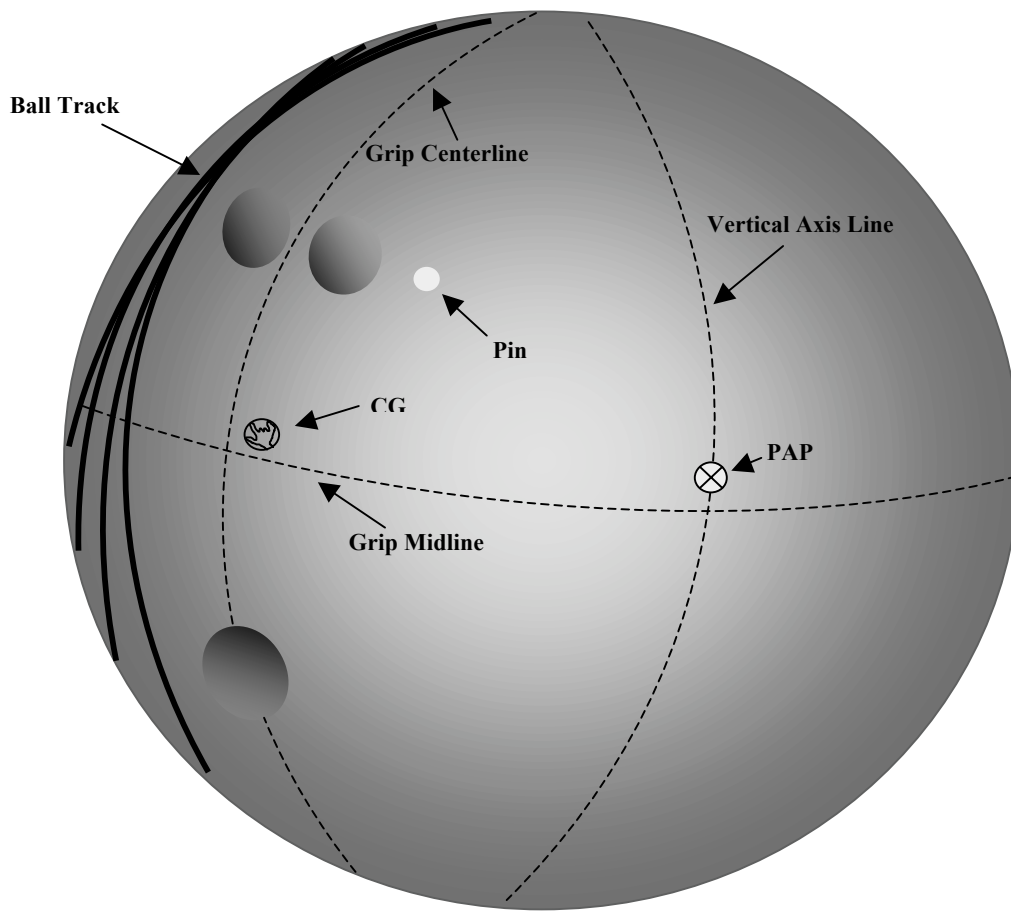




Symmetric Drilling Instructions



Drilling Instructions

These are basic drillings and are recommendations to provide a starting point from which to obtain variations in ball performance. As with any Symmetric core configuration, these balls can be drilled many different ways and can be fine tuned to meet the needs of an individual bowler. Do not hesitate to adjust the drill pattern to match the lane conditions and the bowler's own characteristics such as ball speed, revolutions and axis rotation.

The illustrations of the drill patterns show the Pin, CG (Center of Gravity), PAP (Bowler's Positive Axis Point) in relation to the bowler's Grip midline, Grip Centerline and VAL (Vertical Axis Line). In the diagrams the PAP used is of a bowler with coordinates of 5 inches over and a ½ inch up. What is important to remember is keeping the Pin position relative to the bowler's PAP consistent with the diagrams. This is crucial to obtaining proper performance. For lower rev rates placing the pin ½ inch closer to the PAP than the recommended layouts will result in a larger hook potential. Depending on the bowler the Pin position may look different from that shown in the diagrams.

The drilling instructions shown are for right handed bowlers. Reverse the drill instructions for left handed bowlers. The drilling instructions apply for 10 to 16 lb. balls.

Symmetric Drilling Diagrams

Drilling #1 – Controllable Big Hook Motion

RECOMMENDED LAYOUT

Ball Motion: Excellent length with strong arcing hook motion

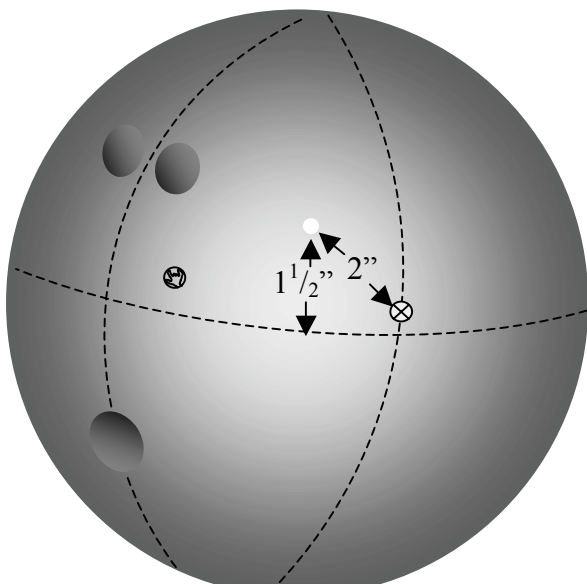
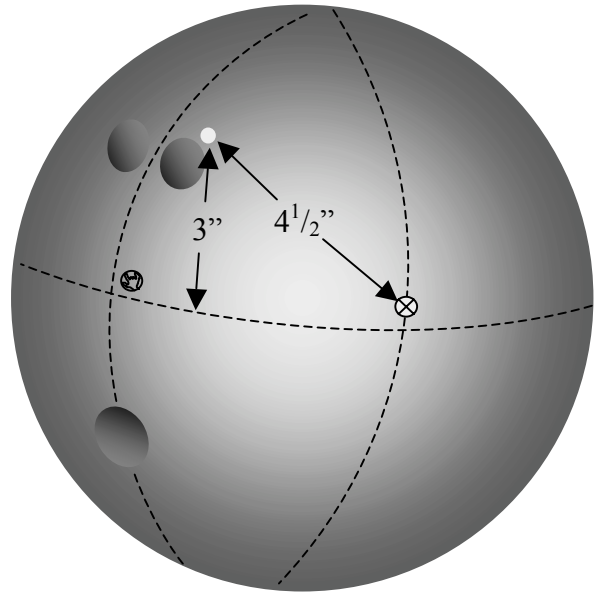
Lane Condition: Medium to Heavy Oil

Flare Potential: Medium (3-5")

Pin Placement: Place pin at $4\frac{1}{2}$ " from PAP

CG Placement: Place CG within toward grip center

Weight Hole: If needed, place weight hole approximately 4" over by 2" up from grip center



Drilling #2 – Controlled Arc

Ball Motion: Controlled arcing hook motion

Lane Condition: Light to Medium Oil

Flare Potential: Low (1-2")

Pin Placement: Place pin at $2 - 2\frac{1}{2}$ " from PAP

CG Placement: Place CG within toward grip center

Weight Hole: If needed, place weight hole on PAP

Drilling #3 – Length with Strong Arc

Ball Motion: Early roll with smooth arcing hook motion

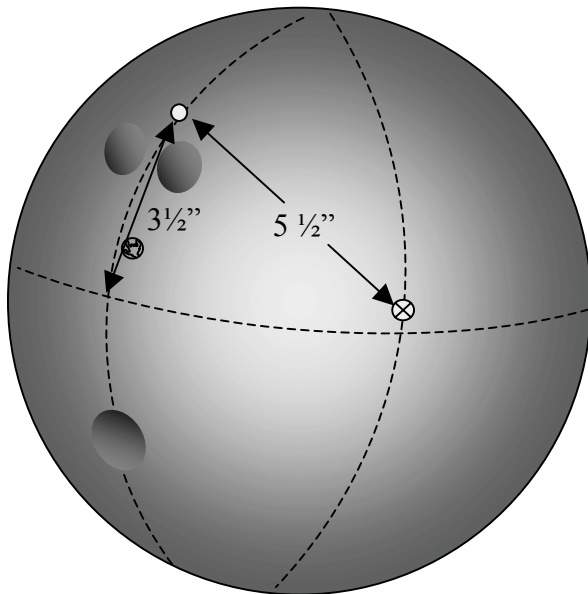
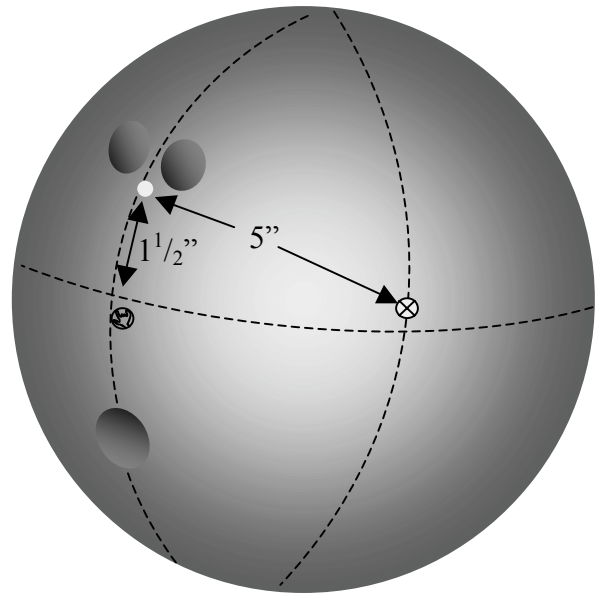
Lane Condition: Light Oil to Medium Oil

Flare Potential: Medium (2-4")

Pin Placement: Place pin at 5" from PAP

CG Placement: Place CG within toward grip center

Weight Hole: Place weight hole on PAP



Drilling #4 – Length with Sharp Backend

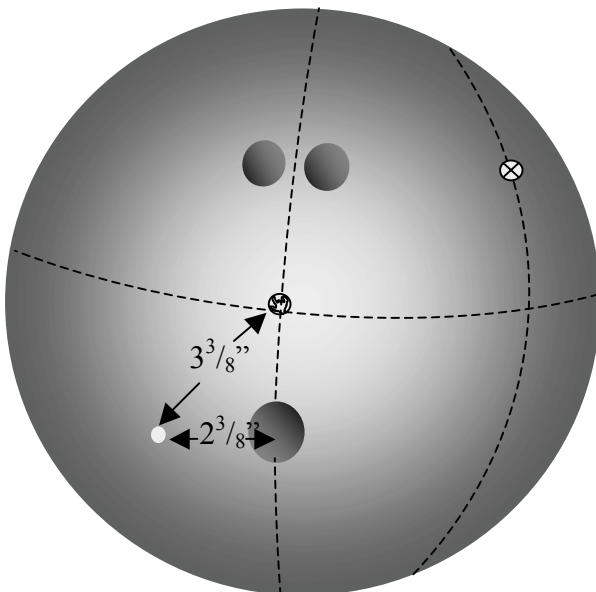
Ball Motion: Exceptional length with sharp backend motion

Lane Condition: Medium Oil

Flare Potential: Low (2-4")

Pin Placement: Place pin at 5 1/2" from PAP

Weight Hole: If needed, place weight hole approximately 4" over by 2" up from grip center



Drilling #5 – Full-Roller Leverage Layout

For Full-Roller Ball Track Only

Ball Motion: Strong arcing ball motion

Flare Potential: Medium

Pin Placement: Place pin 3 3/8" from grip center at 7:30

CG Placement: Place CG within 1" of grip center

General Information & Tips

Top Weight - High top weight tends to make the ball skid further and store more energy through the front end of the lane. We recommend higher tops weights for drier lanes or bowlers with low ball speed. We further recommend for medium ball speeds or medium oil use medium top weights and for heavy oil or high ball speeds use low top weights.

Extra Holes - Might be required in some drilling configurations. We recommend placing the hole on the positive axis point or within 1" past the PAP. The use of balance holes more than 1 inch away from the PAP care must be exercised in selecting the placement to minimize flaring over the hole and must be done in consideration of the type of drilling used along with the strength of the bowler's release.

Static weights - As a rule we recommend that all balls be drilled with approximately ½ ounce of side weight to start. To calm down the backend reaction, gradually remove the positive side weight to ½ ounce negative to promote early hook.

Surface - The surface of today's balls play an extremely important role in matching the bowler's performance expectations with the lane conditions being played. To create the best ball reaction, adjusting the surface by sanding or polishing may be necessary. To add control and move the breakpoint closer sand the ball's surface. The more aggressive the grit the earlier the breakpoint and smoother the move off the breakpoint. To delay the breakpoint and increase the flip potential in the backend of the lanes, reduce the friction of the ball by polishing.

Bowling balls are interactive with their environment and conditions during play. The surface picks up oil, dirt and debris while being bowled. In time any ball's ability to perform will diminish from this wear and tear. So cleaning the ball on a regular basis will not only help to provide a consist reaction but prolong the life and performance of the ball. Using a Microfiber towel before and after each use will help minimize excessive oil, dirt and other unwanted contaminants on the surface of the ball. We recommend using performance ball cleaners for stubborn buildup.

More information can be obtained by going to www.columbia300.com and visiting the tech docs section for more details on drilling and technical information.

Thanks for choosing one of the best brands in bowling, and remember we're here when you have questions or need help; our support line is ready with trained professionals to assist you in optimizing your bowling experience. The support line number is 1-866-464-3791.



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