

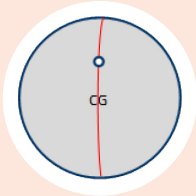
# SYMMETRICAL DRILLING INSTRUCTIONS

- Lay-out techniques ·
- Smooth and controllable ·
- Strong arc ·
- Skid-flip ·
- Full roller layout ·
- Warranty specifications ·

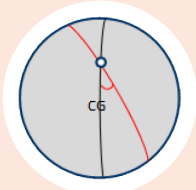


**PROBOWL**

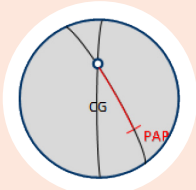
# LAY OUT TECHNIQUES: DUAL ANGLE



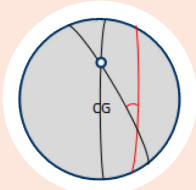
**STEP 1:** Draw line from the pin through the CG



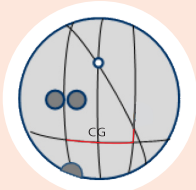
**STEP 2:** Mark the drill angle and extend this line through the pin



**STEP 3:** Mark the pin-PAP distance from the pin



**STEP 4:** Mark the VAL angle and extend this line through the PAP



**STEP 5:** Work back the PAP coordinates on the VAL

In these drilling instructions we will advise you by using the two most commonly used lay-out techniques in the industry combined with a separate full roller lay-out.

The pin buffer lay-out technique utilizes three distances. The pin-PAP distance, the PSA-PAP distance and the pin buffer distance (pin to Vertical Axis Line VAL distance).  
Pin-PAP x PSA-PAP x pin buffer.

The dual angle lay-out technique is slightly different. It uses two angles and the same pin-PAP distance that is used in the pin buffer technique. Drill angle x pin-PAP distance x VAL angle. The pin to PAP distance determines the positioning of the weight block at release. A short pin to PAP distance lays the ball on its side, a long distance stands the weight block straight up. Positioning the weight block on its side creates a smooth reaction while placing it straight up creates a more angular transition down lane. The strongest position possible is by placing the weight block at 45 degrees (3 3/8").

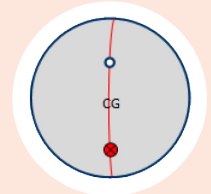
**NOTE:** the examples shown in these drilling instructions are based on right handed bowler.

# PIN BUFFER

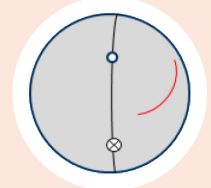
The PSA-PAP distance in the pin buffer technique and the drill angle in the dual angle technique are of no importance while drilling a symmetrical ball. The symmetric weight block has no Preferred Spin Axis (PSA) and can therefore not be positioned in a ball motion altering position like you can with an a-symmetric ball. We do however need this to complete both lay-out techniques.

The symmetric ball does not have a PSA indicator mark, this means that we will create a temporary PSA ourselves. You simply do this by drawing a straight line from the pin through the Center of Gravity (CG) and mark an 'X' 6 3/4" away from the pin.

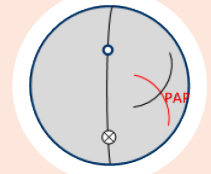
The final variable is the pin buffer or the VAL angle. Both these values alter the height of the pin. A large pin buffer or VAL angle tends to place the pin underneath the fingers. A short pin buffer or VAL angle places the pin above the fingers. By drilling the pin underneath the fingers you will lower the differential in the bowling ball as more weight will be taken from the top part of the weight block. When drilling the pin above the fingers you will take mass out of the side of the weight block which will increase differential and therefore hook potential.



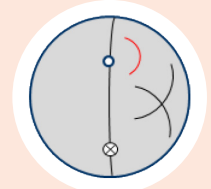
**STEP 1:** Draw a line from the pin through the CG and mark the PSA at 6 3/4"



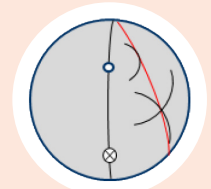
**STEP 2:** Draw an arc from the pin with the pin-PAP distance



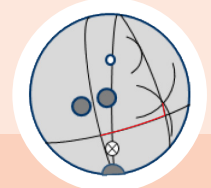
**STEP 3:** Mark the PAP by intersecting with the PSA-PAP arc



**STEP 4:** Draw the pin buffer arc around the pin



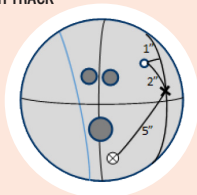
**STEP 5:** Draw the VAL from the edge of the pin buffer through the PAP



**STEP 6:** Work back the PAP coordinates on the VAL

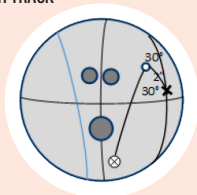
# SMOOTH AND CONTROLLABLE

HIGH TRACK



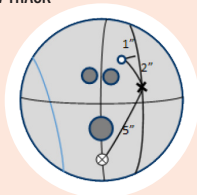
PIN BUFFER

HIGH TRACK



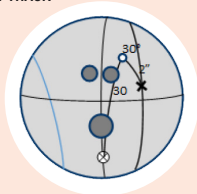
DUAL ANGLE

LOW TRACK



PIN BUFFER

LOW TRACK



DUAL ANGLE

In order to create a smooth and controllable reaction we advise you to use a low RG layout. This places the weight block in a stable position at release. This is great for shorter or fresher conditions.

Advised pin buffer lay-out: 2" x 5" x 1"

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Advised dual angle lay-out: 30 ° x 2" x 30°

# STRONG ARC

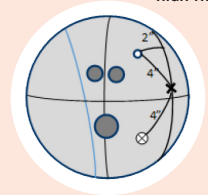
We advise you to place the weight block at an unstable position at release without increasing the differential too much. This is a great lay-out to open up the lane with.

Advised pin buffer lay-out: 4" x 4" x 2"

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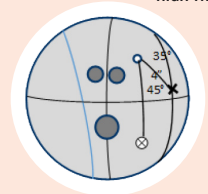
Advised dual angle layout: 45° x 4" x 35°

HIGH TRACK



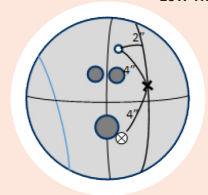
PIN BUFFER

HIGH TRACK



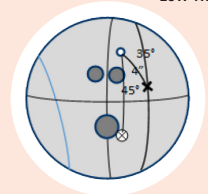
DUAL ANGLE

LOW TRACK



PIN BUFFER

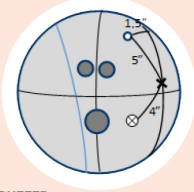
LOW TRACK



DUAL ANGLE

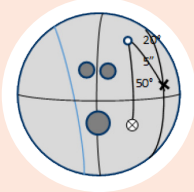
# SKID-FLIP

HIGH TRACK



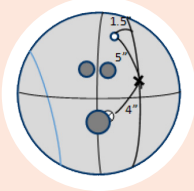
PIN BUFFER

HIGH TRACK



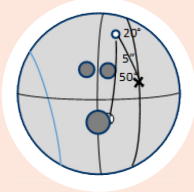
DUAL ANGLE

LOW TRACK



PIN BUFFER

LOW TRACK



DUAL ANGLE

When you are laying the ball out to create a sharp angle down lane we would advise you to place the pin further away from the PAP in combination with a high pin placement. This will store energy and increase differential.

Advised pin buffer lay-out: 5" x 4" x 1 1/2"

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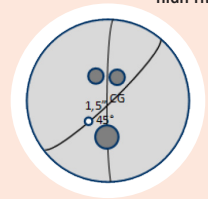
Advised dual angle lay-out: 50° x 5" x 20°

# FULL ROLLER

Due to the full roller release type with  $0^\circ$  of tilt you won't be able to use either one of the drilling techniques above. These bowlers flare between the fingers and the thumb. You do not want the flare in the direction of the holes, by placing the pin below the center line with the CG above the pin the ball will flare in the opposite direction. The ball will still hook in the correct direction when inverting the track direction.

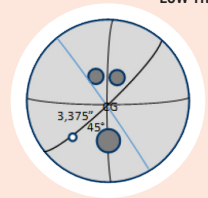
Simply place the pin  $45^\circ$  away from the track flare starting at the center of the grip. Use a maximum of  $3\frac{3}{8}"$  from the center of the grip.  $3\frac{3}{8}"$  will provide you with the most angular reaction. A shorter distance smoothens out the reaction.

HIGH TRACK



DUAL ANGLE

LOW TRACK



PIN BUFFER

# WARRANTY

## SPECIFICATIONS

Congratulations on your recent ProBowl bowling ball purchase. We are confident that you will enjoy bowling with your friends and family even more. We warrant that this ball will be free from defects in materials and workmanship. ProBowl shall however in no case be responsible for any damages caused by the following:

- The effects of ball plugging or solid slug inserts.
- The width of the bridge between the finger holes, excluding finger grips, is less than 1/4 inch.
- The bridge has been weakened at the base by pitches which allow the finger holes to join at the bottom.
- Sharp edges around a finger, thumb, or extra hole that have not been properly rounded by moderate beveling or sanding.
- Distance between the edge of any hole and the riser pin and/or PSA locator pin is less than 1 inch.
- Warming the ball in excess of 125 degrees Fahrenheit or 51 degrees Celsius.
- Damages caused by automatic pinsetters, ball return systems, or gutters.
- Bowler misuse or abuse.

